

Independent Environmental Audit #1 Corrective Action Plan

Project Details

Project Name: Chau Chak Wing Museum

Project Number: 250048

Project Location: F21 Chau Chak Wing Museum, Sydney University, University Avenue, Camperdown Campus

Client: The University of Sydney

Project Manager:

Senior Project Manager: Branko Mihaljevic

Date work is to commence (approx.) 15/04/2018

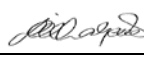
Estimated duration of work 23 Months

Name of principal contractor: FDC Construction (NSW) Pty Ltd

Company address: 22 - 24 Junction Street Forest Lodge NSW 2037


ABN: 72608609427

Approvals

Project Manager:	Signature:	Date:
Senior Project Manager: Branko Mihaljevic	Signature: 	Date: 05/03/19
Project Director	Signature:	Date:
General Manager:	Signature:	Date:
Divisional IMS Manager:	Signature:	Date:

Distribution: Client, Principal, Superintendent, Department of Planning & Environment

**Management Plan
Revision:**

Rev Date	REVISION DESCRIPTION	PM's INITIALS (acceptance of changes)
05/03/19	A – For Approval	

All changes to Corrective Action Plan are to be reviewed and approved by the Project Manager.

CONTENTS

1 INTRODUCTION:	4
2 AUDIT FINDINGS:	4
3 FDC CONSTRUCTION (NSW) RESPONSES:	4
4 FDC CONSTRUCTION (NSW) RESPONSES:	
5 PROJECT INNOVATION:	5

1 Introduction:

The purpose of this corrective action plan is to identify, respond and address the non-conformances and recommendations outlined in the 3rd independent environmental audit undertaken by NGH Environmental for the Chau Chak Wing Museum Project (SSD 7894).

2 Audit Findings:

Please refer to appendix 1 of the corrective action plan for the final audit report prepared by NGH Environmental.

3 FDC Construction (NSW) Responses:

Below is a summary of FDC Construction's responses to the above mentioned Non-conformances and recommendations:

Non Conformances:	
Reference	FDC Response
A14	FDC provided UoS the updated CEMP Rev E on 26/09/18 (FDCF-GCOR-002247). In line with the agreed DA responsibility matrix it is the responsibility of UoS to maintain the website in line with condition C28. FDC will request that this information is updated on the website to close this non-conformance out from audit 3.
C4	In line with appendix 2 noise monitoring report prepared by environmental monitoring services dated 14/01/19, any noise exceedance is due to traffic noise generated from Parramatta road and not due to construction works. FDC also note that rock breaking activities are no longer being completed as this stage of works are complete.
C11	As per response to C4
C28	As per response to A14
C31	FDC provided UoS the final construction compliance report #1 on 07/12/18. As per the above the maintenance of the website is the responsibility of UoS.
C34	Noise monitoring is not required in order to satisfy the DA conditions and was only undertaken to understand if there were any exceedances caused by construction works. As such FDC did not include this in the construction compliance report as it was not deemed required. FDC will update the construction compliance report with the results of the monitoring and include any additional monitoring in future reports.
Stormwater Discharge Quality	FDC engaged ADE Environmental to review the turbidity levels of Lake Northam to provide a baseline for the quality of the water. In line with appendix 3 the report indicates there were no exceedance of the adopted criteria and this report also provides a criteria for any future discharge.
NVMP	As per response to C4
Recommendations:	
Reference	FDC Response
1	Please refer to appendix 4 which is the fully executed REF dated 13/12/18.
2	Noted – FDC will request that the updated CEMP is uploaded to the UoS website.
3	Noted – FDC will request that the link is updated to ensure access to the construction compliance report
4	Noted – FDC will update the construction compliance report and ensure all results of monitoring are included in future reports.
5	Noted – FDC will further review if any additional de-watering is required on the project.

4 Project Innovation:

The CCWM project is dedicated to innovation through the implementation of effective sustainability targets not only during construction, but through smart decision making in the design phase to reduce the impact the building will have on the environment during its life cycle.

This is evident through the projects aim of achieving a “gold star” rating on the Universities sustainability framework.

Examples of innovation and sustainable practices include the projects aim of recycling at least 85% of building and demolition materials by weight and improving building energy performance by 20%.

Update as at 19/09/18 (IEA #2):

Further to the above mentioned “gold star” rating on the Universities sustainability framework, FDC’s sustainability consultant Steensen Varming have compiled and submitted the “gateway 3 submission” on the 18/09/2018 which we are targeting to satisfy all requirements to achieve the gold rating. There are still 3 credits which FDC are continuing to work on with the subcontractor team being life cycle costing analysis for the mechanical systems, loose furnishing and fittings and joinery. The FDC/ESD team are confident at this point in time we will satisfy the requirements of the sustainability framework and achieve the gold start rating for the project.

Further updates on the progression of the sustainability framework will be provided with each corrective action plan moving forward.

Update as at 05/03/19 (IEA #3):

FDC continue to focus on the aim of achieving a “gold star” rating on the Universities sustainability framework.

A meeting was held between all relevant stakeholders on the 14/02/19 and we are still on track to achieve the above.

6 Appendix 1: Audit #3 Report



Audit Report

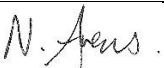
ENVIRONMENTAL AUDIT REPORT

CHAU CHAK WING MUSEUM – SYDNEY UNIVERSITY

DECEMBER 2018



INDEPENDENT AUDIT DECLARATION

Project Name	Chau Chak Wing Museum
Consent No.	SSD 7894
Description of Project	Chau Chak Wing Museum Construction
Project Address	Sydney University, University Avenue, Camperdown Campus, Camperdown, NSW 2050
Proponent	Sydney University
Construction contractor	FDC Construction
Title of Audit	Independent Audit
Date	December 2018
<p>I declare that I have undertaken the Independent Audit and prepared the contents of the attached Independent Audit Report and to the best of my knowledge:</p> <ul style="list-style-type: none"> the audit has been undertaken in accordance with relevant condition(s) of consent and the <i>Independent Audit Post Approval Requirements (Department 2018)</i>; the findings of the audit are reported truthfully, accurately and completely; I have exercised due diligence and professional judgement in conducting the audit; I have acted professionally, objectively and in an unbiased manner; I am not related to any proponent, owner or operator of the project neither as an employer, business partner, employee, or by sharing a common employer, having a contractual arrangement outside the audit, or by relationship as spouse, partner, sibling, parent, or child; I do not have any pecuniary interest in the audited project, including where there is a reasonable likelihood or expectation of financial gain or loss to me or spouse, partner, sibling, parent, or child; neither I nor my employer have provided consultancy services for the audited project that were subject to this audit except as otherwise declared to the Department prior to the audit; and I have not accepted, nor intend to accept any inducement, commission, gift or any other benefit (apart from payment for auditing services) from any proponent, owner or operator of the project, their employees or any interested party. I have not knowingly allowed, nor intend to allow my colleagues to do so. <p>Notes:</p> <p>a) Under section 10.6 of the <i>Environmental Planning and Assessment Act 1979</i> a person must not include false or misleading information (or provide information for inclusion in) in a report of monitoring data or an audit report produced to the Minister in connection with an audit if the person knows that the information is false or misleading in a material respect. The proponent of an approved project must not fail to include information in (or provide information for inclusion in) a report of monitoring data or an audit report produced to the Minister in connection with an audit if the person knows that the information is materially relevant to the monitoring or audit. The maximum penalty is, in the case of a corporation, \$1 million and for an individual, \$250,000; and</p> <p>b) The <i>Crimes Act 1900</i> contains other offences relating to false and misleading information: section 307B (giving false or misleading information – maximum penalty 2 years imprisonment or 200 penalty units, or both)</p>	
Name of Auditor	Natascha Arens
Signature	 29/1/2019
Qualification	BAppSc, Masters Business and Environmental management, Certified Exemplar lead environmental auditor.
Email Address	Michial.s@nghenvironmental.com.au
Company	NGH Environmental
Company Address	18/21 Mary Street, Surry Hills NSW 2010

CONTENTS

1	INTRODUCTION.....	1
1.1	BACKGROUND.....	1
1.2	AUDIT SCOPE.....	1
2	DETAILS OF THE SITE AUDIT	2
2.1	SITE INSPECTION AND DOCUMENT REVIEW	2
2.2	PREVIOUS AUDIT FINDINGS	2
2.3	CURRENT AUDIT FINDINGS – SUMMARY	2
2.4	SUMMARY OF NON COMPLIANCES AGAINST CONDITIONS	4
2.5	SUMMARY OF NON COMPLIANCE AGAINST REQUIREMENTS IN PLANS	5
3	RECOMMENDATIONS	5
APPENDIX A AUDIT PROTOCOL/CHECKLIST		6
SUBPLANS.....		39

1 INTRODUCTION

1.1 BACKGROUND

FDC construction (FDC) has been contracted by the University of Sydney to construct the Chau Chak Wing Museum (CCWM), University Avenue, Camperdown Campus. The project requirements are as set out in the Principals Project Requirements (PPR) Rev 2 September 2017.

FDC have engaged NGH Environmental to conduct quarterly audits of the project. The audit scope include the requirements of the SSD 7894 Development consent, the Environmental Management Plan Rev D and associated sub plans.

This report details the results of the third audit for this project. The findings of the audit are summarised in Section 2 and recommendations are made in Section 3. Appendix A includes a checklist of all compliance requirements for the project.

1.2 AUDIT SCOPE

An Audit of FDC's compliance with the environmental management plans and the relevant consent conditions was undertaken. A checklist was compiled during the first audit for this project and was used during this third audit to detail all consent conditions and commitments in the environmental plans and FDCs compliance. The following documents were also reviewed:

- Coffey (July 2018) Groundwater quality testing report
- FDC Chau Chak Environmental Management Plan Rev D July 2018
- Complaints register
- Toolbox talks for the including on these dates in 2018: 26/11, 19/11, 12/11, 8/11, 1/11, 25/10, 18/10, 12/10, 5/10, 27/9, 20/9, 14/9, 7/9.
- Weekly inspections undertaken each Friday
- Monthly Health, Safety, Environment and quality audits for September October and November 2018.
- Review of environmental factors (Ethos Urban December 2018) for proposed design changes
- Johnson Pilton Walker BCA design statement dated 12/10/18
- Structural plans with CC#2. CC#2 is signed and dated 20/9/18.
- Structural design certification (Northrop 8 September 2018)
- Noise monitoring report and results (EMS September 2018)
- Email evidence of submission of second independent audit report (email dated 27/11/18 from Anthony Murphy Sydney University)
- Email evidence of the commencement of structural works (Email dated 18 October 2018 from FDC to Compliance@planning.nsw.gov.au)
- Letter stating compliance with outdoor lighting requirements Steensen Varming 17 September 2018)
- Letter stating compliance with Mechanical Services (Dewpoint Group 15 October 2018)
- Civil and Hydraulic plans prepared by Northrop Rev 4 issued for approval 12.09.2018.
- Water quality testing results prior to discharge for September, October, November and December 2018.

- Aborsafe Aboricultural Site inspection checklist 3 December 2018
- Construction compliance report dated 9/9/18

The focus of this audit was to check FDC implementation of the EMP and sub plans and compliance with the construction conditions of the SSD 7894. This audit period is 01/09/2018 – 20/12/2018.

2 DETAILS OF THE SITE AUDIT

2.1 SITE INSPECTION AND DOCUMENT REVIEW

A site inspection was conducted on 5/12/2018. Present were Natascha Arens (Environmental Auditor) and Harry Moate (Cadet, FDC Construction). Further document review was undertaken on the 19-20/12/2018.

The purpose of site visit was to undertake an inspection of works on site, view the site and access arrangements, gain an understanding of the current scope of the works and exchange documentation for the third audit of the project.

The site was viewed from safe access points. It was noted during the site visit that:

- Hoarding was in place
- Exclusion zones around retained figs were intact and maintained
- Project Contact details, construction hours, contact for complaints was available on signage at the entrance to the site
- The traffic control plan was being implemented
- Spill kits were stocked
- Rumble grids were at the site exit
- Internal haul roads were sealed preventing mud tracking to University Avenue
- Rubbish was separated
- The site was maintained and free of litter

2.2 PREVIOUS AUDIT FINDINGS

Reference	Compliance Status	Action Required	Status
A18	Recommendation	Sydney university to update website to include current complaints register (version on website is currently blank)	Closed Sydney University have updated the website to include the current complaints register
B18	Recommendation	Update EMP appendix list to include Appendix 7.	Open The version of the CEMP (Rev A) on the university website has not been updated to include the updated Appendix List.

2.3 CURRENT AUDIT FINDINGS – SUMMARY

The audit found that FDC are generally complying with the requirements of the management plans and related sub plans.

The site is well maintained and regular surveillance and training is occurring.

A review of weekly tool box talks including 26/11, 19/11, 12/11, 8/11, 1/11, 25/10, 18/10, 12/10, 5/10, 27/9, 20/9, 14/9, 7/9/2018 shows that FDC are consistently undertaking these. Tree Protection Zone awareness is included in the toolbox every week as is strict adherence to gate access.

Weekly site inspections occur on Friday with one or two representatives of the subcontractors. The inspections include an audit/review process and give recommendations /actions. A review of actions raised in the checklist found that actions are closed out as evidenced by signed close out sheets.

Monthly safety QA and environmental audits are undertaken. Three audits have been undertaken to date indicating that they are occurring monthly on the 2/10, 2/11 and the 3/12.

The monthly audit includes

- The monthly audit checklist
- A review of all risk assessments to make sure all are still current for that stage of works. Focussing on high risk construction works.
- A review of all high risk activities checking that all relevant procedures are in place and implemented.
- Sub-contractor control, includes a review of all procedures to ensure that they are being implemented
- FDC worker compliance which looks at new training requirements and checks that the F17 weekly WH&S Checklist is being completed.
- Reviews all weekly issues raised in site inspection have been closed out.

A review of the most recent Aborsafe Tree inspection checklist (3/12/18) found that all trees within the fenced tree protection Zone remained in fair to good health. It is noted that the Aborsafe have stated that the original plans used in the report dated in this condition have changed and there has subsequently been some encroachment in TPZ areas as a result. It is noted that all encroachments to the TPZ are within the accepted 10% range provided in the original Aborsafe report (May 2017). The following observations were made and summarised below.

- Two trees (tree 29 & 30) were noted as having a slightly altered TPZ, which needs to be reinstated at the edge of the excavation.
- Tree 33 was also noted as having a slight change to the TPZ, but this change was considered acceptable by the Arborist.
- Tree 44 and 51 had an altered TPZ, however this was required for the installation for electrical conduit and the Arborist note that the tree is in good health.
- Tree 57 was noted as having some damaged branches which now require trimming, the tree was otherwise in good health.
- Tree 80 has had encroachment within the original TPZ assessed by Aborsafe due to later design changes to the approved project. Despite this the tree remains in good health, however it is noted that if any further encroachment the tree should be considered for removal due to encroachment to the root zone which could affect the stability of the tree.
- Works on Tree 1008 were within the TPZ, for necessary works on the Kiosk. The tree is very close to the kiosk and discussions are ongoing as to whether this tree can be retained so close to the kiosk. Discussions with FDC staff indicate that this work is now complete and that Tree 1008 will not be removed.

The arborist also requests that FDC confirm that watering at a rate of 10mm per week is occurring. NGH will confirm that there is documented evidence of this during the March 2019 audit (Audit #4), as well as fertilising certain select trees.

2.4 SUMMARY OF NON COMPLIANCES AGAINST CONDITIONS

Condition Number	Summary of Non compliance
A14 – revised CEMP	A number of minor amendments to the CEMP (current version is Rev E) and sub plans have been made. It is noted that FDC have provided these updated plans to Sydney University, however the plans on the Sydney University Website are not the current plans being implemented on site. The version of the CEMP on the website is Rev A. Nor is there any evidence that updated plans have been submitted to DPE.
C4 – Construction noise levels	<p>EMS undertook construction noise monitoring to test compliance with the construction noise management levels. Monitoring from 10-16th September 2018. The closest affect residences were determined to be on Arundel Street, Glebe.</p> <p>The construction noise management level in the CVMP is 65dBA. Exceedances of the construction levels did occur during the monitoring period on the 11, 12, 13 and 14 September. It is however noted that the exceedances were a maximum of 2dBA above the criteria and that the exceedances were only the measured peak Noise Level and not the measured average noise level.</p> <p>It is also noted that the largest exceedance of the criteria was on a Sunday when no construction noise occurred.</p> <p>Therefore although there have been exceedances of the criteria; and as stated in the noise report “it is unknown which of the measured short-term noise exceedances above the 65 dB(A) criterion at the monitoring location were the result of works on site or other noise sources from the surrounding environment. “</p>
C11 Construction noise	Monitoring indicated that non compliance with the construction noise levels have occurred. Refer to C4 above for details.
C28 b) – requirement to keep strategies and plans up to date on the website	The version of the CEMP and other plans on the university website are not up to date. The CEMP on the website is Rev A and the current version is Rev E
C31 six monthly construction reporting required to be available on the project website	<p>A construction compliance report has been prepared. The link to the report is available on the website, however at the time of the audit the link to this report was not working.</p> <p>http://sydney.edu.au/museums//museums/pdfs/CCWM%20Construction/SSD%207894%20%20Construction%20Compliance%20Report.pdf</p>
C34 Construction compliance report	A review of the compliance report notes that it does not comply with the requirements of this condition in that does not include the results of all monitoring undertaken (item a).

2.5 SUMMARY OF NON COMPLAINE AGAINTS REQUIREMETNS IN PLANS

Requirement	Summary of Non compliance
Stormwater discharge quality <ul style="list-style-type: none"> PH 6.5- 8.5, Turbidity <50NTU, No visible oil & grease 	5 instances have occurred where the 50NTU is above including on the 26/10, 29/10, 1/11, 2/11, and 9/11. pH was within the accepted range.
5.2 of the Noise and Vibration management plan (NVMP)	<p>The noise management level is 65dBA LAeq(15min) for residential and education receivers and 70dBA LAeq(15min) for commercial receivers</p> <p>Some exceedances of the noise management levels have occurred. refer to C4 above for details.</p>

3 RECOMMENDATIONS

The table below summarises the recommendations made as a result of this audit.

Reference	Recommendation
1. A13 in relation to A13 d (modifications)	NGH to follow up submission of design modification to DPE in Audit #4
2. A14 & C28 CEMP	Current CEMP to be uploaded to the project website
3. C31 six monthly report on website	Repair link website link for to access the current Construction compliance report
4. C34 Construction compliance report	Construction compliance reports to all information as required in C34.
5. CEMP Environmental Actions and Monitoring table	Review process for testing and discharging waters.

APPENDIX A AUDIT PROTOCOL/CHECKLIST

The compliance status for each requirement or commitment has been assessed in accordance with the criteria in Table 1 (DPE 2015).

Table 1 - Compliance assessment criteria

Assessment	Criteria
Compliant (C)	Where the auditor has collected sufficient verifiable evidence to demonstrate that the intent and all elements of the requirement of the regulatory approval have been complied with within the scope of the audit.
Not verified (NV)	Where the auditor has not been able to collect sufficient verifiable evidence to demonstrate that the intent and all elements of the requirement of the regulatory approval have been complied with within the scope of the audit. In the absence of sufficient verification the auditor may in some instances be able to verify by other means (visual inspection, personal communication, etc.) that a requirement has been met. In such a situation, the requirement should still be assessed as not verified. However, the auditor could note in the report that they have no reasons to believe that the operation is non-compliant with that requirement.
Non-compliant (NC)	Where the auditor has collected sufficient verifiable evidence to demonstrate that the intent of one or more specific elements of the regulatory approval have not been complied with within the scope of the audit.
Administrative non-compliance (ANC)	A technical non-compliance with a regulatory approval that would not impact on performance and that is considered minor in nature (e.g. report submitted but not on the due date, failed monitor or late monitoring session). This would not apply to performance-related aspects (e.g. exceedance of a noise limit) or where a requirement had not been met at all (e.g. noise management plan not prepared and submitted for approval).
Not triggered (NT)	A regulatory approval requirement has an activation or timing trigger that had not been met at the time of the audit inspection, therefore a determination of compliance could not be made.
Observation (O)	Observations are recorded where the audit identified issues of concern which do not strictly relate to the scope of the audit or assessment of compliance. Further observations are considered to be indicators of potential non-compliances or areas where performance may be improved.
Note	A statement or fact, where no assessment of compliance is required.

In addition, where a particular condition was not audited as it is outside of the scope of this particular audit the code not applicable (NA) has been used.

Reference	Requirement	Stage/timing	Compliance Status	Action Required	Comments
SSD 7984 consent requirements PART A Administrative Conditions					
A1	In addition to meeting the specific performance measures and criteria in this consent, all reasonable and feasible measures must be implemented to prevent, and if prevention is not reasonable and feasible, minimise, any material harm to the environment that may result from the construction and operation of the development.	ALL	C	C	Construction has commenced and all reasonable and feasible measures are being implemented to minimise harm.
A2	The development may only be carried out: a) in compliance with the conditions of this consent; b) in accordance with all written directions of the Secretary; c) generally in accordance with the EIS as amended by the (response to Submissions) RtS and RtS Supplementary Information; and d) in accordance with the approved plans in the table below (refer to SSD 7984)	ALL	Note	C	All conditions relevant to the construction stage of works have found to be compliant
A3	Consistent with the requirements in this consent, the Secretary may make written directions to the Applicant in relation to: a) the content of any strategy, study, system, plan, program, review, audit, notification, report or correspondence submitted under or otherwise made in relation to this consent, including those that are required to be, and have been, approved by the Secretary; and b) the implementation of any actions or measures contained in any such document referred to in (a) above. The conditions of this consent and directions of the Secretary prevail to the extent of any inconsistency, ambiguity or conflict between them and a document listed in condition A2(c) or A2(d). In the event of an inconsistency, ambiguity or conflict between any of the documents listed in condition A2(c) and A2(d), the most recent document prevails to the extent of the inconsistency, ambiguity or conflict. <i>Note: For the purposes of this condition, there will be an inconsistency between documents if it is not possible to comply with both documents, or in the case of a condition of consent or direction of the Secretary, and a document, if it is not possible to comply with both the condition or direction, and the document.</i>	ALL	Note	NT	
A4	If there is any inconsistency between the plans and documentation referred to above the most recent document shall prevail to the extent of the inconsistency. However, conditions	ALL	Note	NT	

Reference	Requirement	Stage/timing	Compliance Status	Action Required	Comments
	of this consent prevail to the extent of any inconsistency. Where there is an inconsistency between approved elevations and plans, the elevations prevail.				
A5	<p>In order to ensure the design quality excellence of the development is retained:</p> <p>a) the design architect (Johnson Pilton Walker) is to have direct involvement in the design documentation, contract documentation and construction stages of the project;</p> <p>b) the design architect is to have full access to the site and is to be authorised by the Applicant to respond directly to the consent authority where information or clarification is required in the resolution of the design issues throughout the life of the project; and</p> <p>c) evidence of the design architect's commission is to be provided to the Secretary prior to certification of any building works, except for site preparatory works.</p>	ALL	C		<p>Johnson Pilton Walker are the architect.</p> <p>A design change is currently being assessed and an REF has been prepared to address the modification.</p> <p>The approved north and south façade of the CCWM comprised a series of horizontal slot windows separated by textured concrete. Under the proposed modification, the textured concrete is proposed to be deleted and replaced with glazing. This will form a continuous strip of glazing across each façade.</p> <p>The REF was prepared by Ethos Urban (13/12/18). It was noted that the design architect Johnson Pilton Walker have prepared the revised Architectural drawings (Appendix 1 of the REF), showing evidence of their ongoing involvement in the project.</p>
A6	The design architect for the project must not change without prior approval of the Secretary.	ALL	NT		Johnson Pilton Walker are the architect
A7	<p>Where conditions of this consent require consultation with an identified party, the Applicant must:</p> <p>a) consult with the relevant party prior to submitting the subject document for approval; and</p> <p>b) provide details of the consultation undertaken including:</p> <p>i) a description of how matters raised by those consulted have been resolved to the satisfaction of both the Applicant and the party consulted; and</p> <p>ii) details of any disagreement remaining between the party consulted and the Applicant and how the Applicant has addressed the matters not resolved.</p>	ALL	Note	C	FDC are in regular consultation with Sydney Uni
A8	This consent will lapse five years from the date of consent unless the works associated with the development have physically commenced.	ALL	Note	NT	
A9	The Applicant must comply with all relevant prescribed conditions of development consent under Part 6, Division 8A of the EP&A Regulation.	ALL	Note	C	The project certifier is responsible for ensuring compliance with the Building Code Australia (BCA). Submitted with CC2 was a designers statement

Reference	Requirement	Stage/timing	Compliance Status	Action Required	Comments
					<p>confirming compliance with part E3 of the Building Code of Australia regarding the installation of lifts.</p> <p>Johnson Pilton Walker provided a BCA design statement giving their recommendation of compliance with the relevant BCA clauses for floor, wall and ceiling materials and linings, door handles and locks, Exits and paths of travel, floor linings and stairways and ramps (evidenced by letter dated 12/10/18).</p> <p>Signage has been erected in accordance with the EP&A regulation</p>
A10	In the event of a dispute between the Applicant and a public authority, in relation to an applicable requirement in this approval or relevant matter relating to the Development, either party may refer the matter to the Secretary for resolution. The Secretary's resolution of the matter shall be binding on the parties.	ALL	NT		
A11	For work costing \$25,000 or more, a Long Service Levy must be paid. For further information please contact the Long Service Payments Corporation Helpline on 131 441.	ALL	C		A copy of the Long Service Levy receipt was provided for the audit. Receipt no 0033544, providing evidence that the sum of \$130,310 was paid to the DPE dated 15.5.2018.
A12	Any advice or notice to the consent authority shall be served on the Secretary.	ALL	Note	NT	
A13	<p>Within three months of:</p> <p>a) the submission of a compliance report under conditions of this consent;</p> <p>b) the submission of an incident report under conditions of this consent;</p> <p>c) the submission of an Independent Environmental Audit under conditions of this consent;</p> <p>d) the approval of any modification to the conditions of this consent; or</p> <p>e) the issue of a direction of the Secretary under condition A3, the strategies, plans and programs required under this consent must be reviewed, and the Department must be notified in writing that a review is being carried out.</p>	ALL	C	<p>NGH to follow up submission of design modification to DPE in Audit #4</p>	<p>FDC have fulfilled their role in providing the second audit report to Sydney University</p> <p>A modification to the design is currently being assessed. Sydney University have commissioned a planner to prepare a Review of Environmental Factors (REF).</p> <p>At the time of writing there was no evidence to show if the modification had been provided to the DPE. It is noted that the REF has only just been completed (13/12/18).</p> <p>No incidents in this reporting period—</p>

Reference	Requirement	Stage/timing	Compliance Status	Action Required	Comments
A14	<p>If necessary to either improve the environmental performance of the development, cater for a modification or comply with a direction, the strategies, plans and programs required under this consent must be revised and submitted:</p> <p>a) to the Secretary's satisfaction if previously approved by the Secretary; or b) to the Secretary for information.</p> <p>Where revisions are required, the revised document must be submitted to the Secretary within six weeks of the review.</p> <p><i>Note: This is to ensure the strategies, plans and programs are updated on a regular basis and to incorporate any recommended measures to improve the environmental performance of the development.</i></p>	ALL	NC	As a number of revisions to plans have been made, revised plans should be submitted to DPE.	Only minor amendments have been made to environmental management documents. Although the amendments are only minor, it is noted that revised plans have not been submitted to the DPE and that the current revision is now at Rev E.
A15	The Department must be notified in writing to compliance@planning.nsw.gov.au within 24 hours after the Applicant becomes aware of an incident. The notification must identify the development (including the development application number and the name of the development if it has one), and set out the location and nature of the incident.	ALL	C		Included in 3.8.2 of the CEMP. No incidents have occurred to date
A16	<p>a) A written incident notification must also be emailed to the Department at the following address: compliance@planning.nsw.gov.au within seven days after the Applicant becomes aware of an incident. Notification is required to be given under this condition even if the Applicant forms the view that an incident has not occurred.</p> <p>b) Written notification of an incident must:</p> <p>i) identify the development and application number; ii) provide details of the incident (date, time, location, a brief description of what occurred and why it is classified as an incident); iii) identify how the incident was detected; iv) identify when the Applicant became aware of the incident; v) identify any actual or potential non-compliance with conditions of consent; vi) describe what immediate steps were taken in relation to the incident; vii) identify further action(s) that will be taken in relation to the incident; and viii) identify a project contact for further communication regarding the incident.</p>	ALL	C		Included in 3.8.2 of the CEMP No incidents have occurred to date

Reference	Requirement	Stage/timing	Compliance Status	Action Required	Comments
A 17	<p>a) Within 30 days of the date on which the incident occurred or as otherwise agreed to by the Secretary, the Applicant must provide the Secretary and any relevant public authorities (as determined by the Secretary) with a detailed report on the incident addressing all requirements for such reporting set out in A15(b), and such further reports as may be requested.</p> <p>b) The Incident Report must include:</p> <p>i) a summary of the incident;</p> <p>ii) outcomes of an incident investigation, including identification of the cause/s of the incident;</p> <p>iii) details of the corrective and preventative actions that have been, or will be, implemented to address the incident and prevent recurrence; and</p> <p>iv) details of any communication with other stakeholders regarding the incident.</p>	ALL	NT		<p>Included in 3.8.2 of the CEMP</p> <p>No incidents have occurred to date.</p>
A18	<p>The Department must be notified in writing to compliance@planning.nsw.gov.au within seven days after the Applicant becomes aware of any non-compliance. The Certifying Authority must also notify the Department in writing to compliance@planning.nsw.gov.au within seven days after they identify any noncompliance.</p>	ALL	C		<p>Included in 3.8.2 of the CEMP</p> <p>No non compliances were raised in audit#2. There was one recommendation to up load the latest complaints register to the website and this has been completed.</p> <p>There was another recommendation to update the CEMP to include Appendix 7 in the appendix list. FDC have completed this action in REV E of the CEMP, however it is note that REV A is the version of the CEMP on the university website (refer to C28 for NC relating to this matter).</p>
A19	<p>The notification must identify the development and the application number for it, set out the condition of consent that the development is non-compliant with, the way in which it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance.</p>	ALL	NT		<p>Included in 3.8.2 of the CEMP</p> <p>As above</p>
A20	<p>Any condition of this consent that requires the carrying out of monitoring or an environmental audit, whether directly or by way of a plan, strategy or program, is taken to be a condition requiring monitoring or an environmental audit under Division 2B of Part 6 of the EP&A Act. This includes conditions in respect of incident notification, reporting and response, non-compliance notification and independent environmental auditing.</p> <p><i>Note: For the purposes of this condition, as set out in the EP&A Act, "monitoring" is monitoring of the development to provide data on compliance with the consent or on the</i></p>	ALL	Note		

Reference	Requirement	Stage/timing	Compliance Status	Action Required	Comments
	<i>environmental impact of the development, and an “environmental audit” is a periodic or particular documented evaluation of the development to provide information on compliance with the consent or the environmental management or impact of the development.</i>				
A21	<p>References in the conditions of this consent to any guideline, protocol, Australian Standard or policy are to such guidelines, protocols, Standards or policies in the form they are in as at the date of this consent.</p> <p>However, consistent with the conditions of this consent and without altering any limits or criteria in this consent, the Secretary may, when issuing directions under this consent in respect of ongoing monitoring and management obligations, require compliance with an updated or revised version of such a guideline, protocol, Standard or policy, or a replacement of them.</p>	ALL	Note		
SSD 7984 consent requirements PART B Prior to Commencement of Works					
B1	<p>The Department, Certifying Authority and Council must be notified in writing of the dates of commencement of physical work and operation at least 48 hours before those dates.</p> <p>If the construction or operation of the development is to be staged, the Department, Certifying Authority and Council must be notified in writing at least 48 hours before the commencement of each stage, of the date of commencement and the development to be carried out in that stage.</p>	Pre construction	C		<p>Notice of commencement was provided to all relevant parties on the 1 June 2018.</p> <p>The construction is being undertaken through staged Crown Certificates (CC). CC2 was provided to DPE and Sydney University (as evidenced by email from the University of Sydney Town Planner dated 12/11/18). FDC also provided an email stating that structural works were planned to commence on the 1st November 2018 in an email from FDC dated 18 October 2018.</p>
B2	Plans certified in accordance with section 109R of the EP&A Act are to be submitted to the Certifying Authority and the Department prior to commencement of each stage of the construction works and must include details as required by any of the following conditions.	Pre construction	C		<p>Approved plans were issued with the SSD dated 23 February 2018 and issued to compliance @DPE on the 5 June 2018. the certifying authority signed off on the Crown certificate and all associated documentation for this stage of works on the 8/6/18.</p> <p>CC2 and has been issued (as evidenced by email from the University of Sydney Town Planner dated 12/11/18)</p>
B3	The building materials used on the facades of the structure must have a maximum normal specular reflectivity of visible light of 20 per cent and must be designed so as not to result in glare that causes any discomfort or threatens the safety of pedestrians or drivers. A statement demonstrating compliance with these requirements or where compliance cannot be met a report that demonstrates that the exceedance would not result in glare	Pre construction	NT		The scope of this third audit is primarily to check the compliance of the conditions of approval relevant to this stage of works and Environmental management plans and sub plans with this approval. This condition will be

Reference	Requirement	Stage/timing	Compliance Status	Action Required	Comments
	that causes any discomfort or threatens the safety of pedestrians or drivers is to be submitted to the satisfaction of the Certifying Authority prior to the commencement of above ground works.				addressed in Crown Certificate 3 (CC3) – fitout ,services and Façade
B4	All outdoor lighting within the site must comply with, where relevant, AS 1158.3.1:2005 Pedestrian Area (Category P) Lighting and AS 4282-1997 Control of the Obtrusive Effects of Outdoor Lighting. Details demonstrating compliance with these requirements are to be submitted to the satisfaction of the Certifying Authority prior to the commencement of above ground works.	Pre construction	C		A statement from Steensen Varming was submitted with CC2 stating that the outdoor lighting design complies with AS 1158.3.1:2005 Pedestrian Area (Category P) Lighting and AS 4282-1997 Control of the Obtrusive Effects of Outdoor Lighting. (letter dated 17/9/2018)
B5	The works that are the subject of this application must be designed and constructed to provide access and facilities for people with a disability in accordance with the Building Code of Australia (BCA). The Certifying Authority must ensure that evidence of compliance with this condition from an appropriately qualified person is provided and that the requirements are referenced on any certified plans.	Pre construction	NT		The scope of this third audit is primarily to check the compliance of the conditions of approval relevant to this stage of works and Environmental management plans and sub plans with this approval. This condition will be addressed in Crown Certificate 3 (CC3) – fitout, services and Façade
B6	Plans demonstrating compliance with the following requirements for bicycle parking shall be submitted to the satisfaction of the Certifying Authority: a) the provision of a minimum of eight bicycle parking spaces are to be provided at the front entrance of the museum for visitors and a minimum of four bicycle parking spaces are to be located in the loading dock for staff; b) the layout, design and security of bicycle facilities shall comply with the all applicable minimum requirements of AS 2890.3:2015 Parking facilities – Bicycle parking, and be located in secure, convenient and accessible areas close to the main entries and incorporating adequate lighting and opportunities for passive surveillance; and c) the provision of end-of-trip facilities for staff including shower, changeroom and lockers.	Pre construction	C		Plans showing Compliance with condition were submitted with CC2. CC#2 is signed and dated 20/9/18.
B7	Soil erosion and sediment control measures must be designed in accordance with the document Managing Urban Stormwater – Soils & Construction Volume 1 (Landcom, 2004). Details are to be submitted to the satisfaction of the Certifying Authority prior to the commencement of any works.	Pre construction	C		Soil erosion and sediment control measures have been designed in accordance with the condition and are detailed in the plan prepared by Northrop (C12.01 CONCEPT SEDIMENT AND EROSION CONTROL PLAN) and submitted with CC1.
B8	The Applicant is to engage a qualified structural engineer to prepare a Pre-Construction Dilapidation Report detailing the current structural condition of all retained existing and adjoining buildings within the site, infrastructure and roads within the 'zone of influence'.	Pre construction	C		Dilapidation reports have been prepared for: <ul style="list-style-type: none"> Roads and Footpaths 3 May 2018; Includes portion of Parramatta Road and internal

Reference	Requirement	Stage/timing	Compliance Status	Action Required	Comments
	<p>Any entry into private land is subject to the consent of the owner(s) and any inspection of buildings on privately affected land must include details of the whole building where only part of the building falls within the 'zone of influence'. The report must be submitted to the satisfaction of the Certifying Authority prior to the commencement of any works. A copy of the report is to be forwarded to Council.</p> <p>In the event that access for undertaking a Pre-Construction Dilapidation Report is denied by an adjoining owner, the applicant must demonstrate, in writing, to the satisfaction of the Secretary that all reasonable steps have been taken to obtain access and advise the affected property owner of the reason for the report and that these steps have failed.</p>				<p>driveways, footpaths, retaining walls, garden walls, stairs, etc.</p> <ul style="list-style-type: none"> • Baxter Lodge 3 May 2018; The Quad/ Great Hall 3 May 2018 Eastern portion and Hall, external walls and common areas only • Fischer Library 3 May 2018; Not including the Stacks <p>The dilapidation report prepared by Cardno (8 May 2018) was reviewed during the audit</p>
B9	<p>Plans demonstrating compliance with the following traffic and parking requirements must be submitted to the satisfaction of the Certifying Authority prior to the commencement of above ground works:</p> <p>a) all vehicles should enter and leave the Subject Site in a forward direction. In the event that site constraints do not permit heavy rigid vehicles to enter and leave in a forward direction, then all reversing movements should be undertaken under the control of certified traffic controllers to ensure public safety when vehicles are reversing;</p> <p>b) all construction vehicles (excluding worker vehicles) are to be contained wholly within the site or designated work zone and vehicles must enter the site and/or work zone before stopping;</p> <p>c) all works/ regulatory signposting associated with the proposed development must be at no cost to the relevant roads authority; and</p> <p>d) the swept path of the longest vehicle entering and exiting the Subject Site in association with the new work, as well as manoeuvrability through the Subject Site, must be in accordance with AUSTROADS. In this regard, a plan must be submitted to the certifying authority for approval, which shows that the proposed development complies with this requirement.</p>	Pre construction	C		<p>The Construction Traffic Management Plan (dated 17 May 2018) was provided with CC1. The plan details</p> <p>a) Figure 4 details vehicle movement on site, Section 3.7 addresses truck sept paths and turning movements</p> <p>b) Section 1.9, Section 3.7 and Site layout plans detail marshalling and parking requirements and include the requirement for vehicles to remain within the site.</p> <p>c) FDC is responsible for construction signage</p> <p>d) Swept path scenarios are detailed in Section 3.7.</p>
B10	<p>Prior to the commencement of works, the Applicant must submit for the approval of the Certifying Authority structural drawings prepared and signed by a suitably qualified practising Structural Engineer that demonstrates compliance with:</p> <p>a) the relevant clauses of the BCA; and</p> <p>b) this development consent.</p>	Pre construction	C		<p>Structural plans have been submitted with CC#2. CC#2 is signed and dated 20/9/18. CC#2 was accompanied by the structural plan as evidenced by the accompanying documentation provided to the certifier (evidenced by letter from Northrop engineers dated 4/9/18).</p>

Reference	Requirement	Stage/timing	Compliance Status	Action Required	Comments
B11	<p>Prior to the commencement of works, the Applicant must demonstrate that the mechanical plant and equipment is designed to meet the following criteria:</p> <p>a) does not generate noise (measured at the most affected or potentially affected residence) that exceeds:</p> <p>i) 53 dBA LAeq(period) for the daytime and evening periods, and</p> <p>ii) 45 dBA LAeq(15minute) for the night time period; and</p> <p>b) does not generate noise that exhibits tonal, low frequency or other annoying characteristics.</p> <p>Details are to be provided by a qualified acoustic engineer to the Certifying Authority prior to commencement of work.</p>	Pre construction	C		Dewpoint Group Certified that mechanical plant and equipment met these criteria. Dewpoint Group prepared a letter stating this dated 15/10.2018.
B12	All mechanical ventilation systems must be installed in accordance with Part F4.5 of the BCA and must comply with the AS 1668.2-2012 The use of ventilation and air-conditioning in buildings – Ventilation design for indoor air containment control and AS 3666.2:2011 Air-handling and water systems of buildings to ensure adequate levels of health and amenity to the occupants of the building and to ensure environment protection. Details must be submitted for the approval of the Certifying Authority prior to the commencement of above ground works.	Pre construction	C		Dewpoint Group Certified that mechanical plant and equipment met these criteria. Dewpoint Group prepared a letter stating this dated 15/10.2018.
B13	The installation, operation and maintenance of warm water systems and water cooling systems (as defined under the Public Health Act 2010) must comply with the Public Health Act 2010, Public Health Regulation 2012 and Parts 1 and 2 (or Part 3 if a Performance-based water cooling system) of AS/NZS 3666.2:2011 Air handling and water systems of buildings – Microbial control – Operation and maintenance and the NSW Health Code of Practice for the Control of Legionnaires' Disease.	Pre construction	NT		These relate to operational noise and will be addressed in Crown Certificate 3 (CC3) – fitout, services and Façade
B14	<p>The building plans and specifications must demonstrate, for the approval of the Certifying Authority, that an appropriate area will be provided within the premises for the storage of garbage bins, recycling containers and all waste and recyclable material generated by the premises. Requirements of these storage areas must:</p> <p>a) ensure all internal walls of the storage area are rendered to a smooth surface, coved at the floor/wall intersection, graded and appropriately drained with a tap in close proximity to facilitate cleaning;</p> <p>b) include provision for the separation and storage, in appropriate categories, of material suitable for recycling; and</p>	Pre construction	C		There is a bin room in the design plans in the basement of the building. Plans with these requirements were submitted with CC#2.

Reference	Requirement	Stage/timing	Compliance Status	Action Required	Comments
	c) include provision for separate storage and collection of organic/food waste.				
B15	The fit out of the food premises shall be carried out in accordance with AS 4674 Design, construction and fit-out of food premises. Details of compliance with the relevant provisions of the food code shall be prepared by a suitably qualified person and submitted to the satisfaction of the Certifying Authority prior to the commencement of works, except site preparatory works.	Pre construction	NT		This condition relates to a design requirement during the operational phase. Crown Certificate 3 (CC3) – fitout, services and Façade. However it should be noted that the actual fit out the food premises will be dealt with as part of a separate contract not being undertaken by FDC.
B16	Final design plans of the stormwater drainage systems, prepared by a qualified practicing professional and in accordance with the requirements of Council, must be submitted to the Certifying Authority prior to the commencement of any works. The hydrology and hydraulic calculations must be based on models described in the current edition of Australian Rainfall and Runoff.	Pre construction	C		Civil and Hydraulic plans have been prepared by Northrop Rev 2 dated 30/5/18.
B17	Kerb and gutter, stormwater drainage, full road width pavement including traffic facilities (vehicle crossings, if applicable) and paved footpaths must be constructed along the area where road works are to be undertaken. In relation to public roads or classified road (as defined under the Roads Act 1993), all roads and traffic facilities must be designed to meet the requirements of Council and RMS (if applicable) and obtain the necessary permits and approvals from the relevant road authority, prior to the commencement of road or pavement construction works.	Pre construction	C		Civil and Hydraulic plans have been prepared by Northrop Rev 4 and issued for approval on 12.09.2018, these plans were submitted with CC#2. These works have not yet commenced.
B18	a) Prior to the commencement of construction works, a Construction Environmental Management Plan (CEMP) must be submitted for the approval of the Certifying Authority. The CEMP must address, but not be limited to, the following matters where relevant: i) hours of work; ii) 24 hour contact details of site manager; iii) traffic management, in consultation with Council; iv) construction noise and vibration management, prepared by a suitable qualified person; v) management of dust and odour to protect the amenity of the neighbourhood; vi) erosion and sediment control; vii) stormwater control and discharge; viii) measures to ensure that sediment and other materials are not tracked onto the roadway by vehicles leaving the Subject Site;		C		i) hours of work are included in the NVMP Section 6.1 ii) 24 hr contacts are included in Section 1.2 of the CEMP iii) traffic management included on site establishment diagrams iv) NVMP prepared by EMS (2018) v) Dust management included in Appendix 1 of the CEMP vi) erosion and sediment control included in Appendix 1 of the CEMP vii) stormwater control included in Appendix 1 of the CEMP viii) requirements for street sweepers and stabilised entry/exit points in Appendix 1 of the CEMP

Reference	Requirement	Stage/timing	Compliance Status	Action Required	Comments
	ix) procedures for encountering groundwater during construction works; x) external lighting in compliance with AS4282:1997 Control of the Obtrusive Effects of Outdoor Lighting; xi) a protocol detailing appropriate procedures for identifying and dealing with unexpected finds of site contamination (including asbestos containing materials, Polycyclic aromatic hydrocarbons (PAHs), Total recoverable hydrocarbons (TRH) and lead-based paint); xii) a protocol detailing appropriate procedures for identifying and dealing with unexpected finds of archaeological and Aboriginal heritage; xiii) waste classification (for materials to be removed) and validation (for materials to remain) be undertaken to confirm the contamination status in these areas of the site; and xiv) waste storage, recycling and litter control; b) The CEMP must not include works that have not been explicitly approved in this development consent. In the event of any inconsistency between the consent and the CEMP, the consent must prevail; and c) The Applicant must submit a copy of the CEMP to the Department and Council prior to commencement of work.				ix) there is a testing requirement in appendix 1 of the CEMP, could also include dewatering requirements in reference to this x) included in the 3.14 of the CEMP xi) Appendix 1 of the CEMP includes steps in the event of an unexpected find xii) Appendix 7 of the CEMP is referenced as the unexpected finds protocol however it was not included in the CEMP, it is however included in the WHS management plan –(F050 WHSE Unexpected finds protocol). This was noted as non conformance in the previous audit and remains open as the xiii) & xiv) A waste management plan has been prepared dealing with classification, storage and recycling c) The EMP was provided to DPE and CoS on the 1 June 2018. It is noted that there have been a number of changes to CEMP since its preparation. As required by C28 these should be provided to DPE. (refer to C28)
B19	The CEMP (as revised from time to time) must be implemented by the Applicant for the duration of the construction works.	ALL	C		The CEMP has been revised by FDC and the current version is Rev E. The CEMP is being implemented by FDC. The version on the University Website is not current and is Rev A (refer C28 for NC against this).
B20	Prior to the commencement of works, a Construction Noise and Vibration Management Plan (CNVMP) must be submitted for the approval of the Certifying Authority. The CNVMP must address, but not be limited to, the following matters where relevant: i) be prepared by a suitably qualified expert; ii) be prepared in consultation with Council and all noise sensitive receivers where noise levels exceed the construction noise management level, in accordance with EPA guidelines; iii) describe the measures that would be implemented to ensure: i. best management practice is being employed; ii. compliance with the relevant conditions of this consent; iv) describe the proposed noise and vibration management measures in detail;	Pre construction	C		i) NVMP prepared by EMS ii) Although the plan has been provided to council there was no evidence to show it had been prepared in consultation with council. The plan has been provided to council and to date no response has been received iii) BMP included in 6.2 of NVMP, NVMP includes relevant consent conditions iv) Section 6 of the NVMP includes mitigation measures v) the NVMP has identified that the noise management level may be exceeded, strategies are included in table 4.3 and section 6 to reduce this impact

Reference	Requirement	Stage/timing	Compliance Status	Action Required	Comments
	<p>v) include strategies that have been developed to address impacts to noise sensitive receivers where noise levels exceed the construction noise management level, for managing high noise generating works;</p> <p>vi) describe the consultation undertaken to develop the strategies in v) above;</p> <p>vii) evaluates and reports on the effectiveness of the noise and vibration management measures; and</p> <p>viii) include a complaints management system that would be implemented for the duration of the construction works.</p> <p>b) The Applicant must submit a copy of the CNVMP to the Department and Council prior to commencement of work.</p>				<p>vi) The NVMP does not detail the consultation undertaken to develop strategies in v) above. This was raised in the first audit and FDC have determined that they deem supplying the plan to council as satisfying the requirements of this condition</p> <p>vii) the NVMP does not include a section that evaluates the effectiveness of controls in the plan. Section 3.16 of the CEMP does include a process for auditing the sub plans.</p> <p>viii) Section 6.7 of the NVMP deals with complaints</p> <p>b) The University of Sydney provided a copy of the NVMP to DPE and CoS as evidenced by the email dated June 2018 from Stephanie Kerr, CIS Town Planner Campus Infrastructure & services the University of Sydney.</p>
B21	The CNVMP (as revised from time to time) must be implemented by the Applicant for the duration of the construction works.	ALL	C		The NVMP is being implemented by FDC.
B22	<p>a) Prior to the commencement of works, a Construction Waste Management Plan (CWMP) must be submitted for the approval of the Certifying Authority. The CWMP must address, but not be limited to, the following matters where relevant:</p> <p>i) recycling of demolition materials including concrete; and</p> <p>ii) removal of hazardous materials and disposal at an approved waste disposal facility in accordance with the requirements of the relevant legislation, codes, standards and guidelines, prior to the commencement of any building works.</p> <p>b) Details demonstrating compliance with the relevant legislative requirements, associated with the removal of hazardous waste, particularly the method of containment and control of emission of fibres to the air, are to be submitted for the approval of the Certifying Authority prior to the removal of any hazardous materials;</p> <p>c) The Applicant must notify the RMS Traffic Management Centre of the truck route(s) to be followed by trucks transporting waste material from the Subject Site, prior to the commencement of the removal of any waste material from the Subject Site; and</p> <p>d) The Applicant must submit a copy of the plan to the Department and to the Council prior to the commencement of work.</p>	Pre construction	C		<p>a) A waste management plan has been prepared Waste management Plan REV A</p> <p>i) recycling of demolition wastes would be undertaken off site</p> <p>ii) the removal of hazardous waste is not specifically covered in the WMP, however this requirement is included in the CEMP Appendix 1</p> <p>b) details regarding legislative compliance for the removal of hazardous waste is not specifically dealt with in the WMP, however is included in the CEMP</p> <p>c) FD has provided the CTMP to RMS for comment (email dated 5/6/2018). The CTMP includes haul routes</p> <p>d) The University of Sydney provided a copy of the WMP to DPE and CoS as evidenced by the email dated June 2018 from Stephanie Kerr, CIS Town Planner Campus Infrastructure & services the University of Sydney.</p>

Reference	Requirement	Stage/timing	Compliance Status	Action Required	Comments
B23	The CWMP (as revised from time to time) must be implemented by the Applicant for the duration of the construction works.	ALL	Noted		Waste is managed by the FDC sub contractor Chalouhi and their waste removal contractor Grasshopper.
B24	<p>Prior to the commencement of construction works, a Construction Traffic and Pedestrian Management Plan (CTPMP) must be prepared by a suitably qualified expert in consultation with Council, RMS and TfNSW (Sydney Coordination Office), and submitted for the approval of the Certifying Authority. The CTPMP must address, but not be limited to, the following matters where relevant:</p> <ul style="list-style-type: none"> i) location of proposed work zones; ii) haulage routes; iii) construction vehicle access arrangements; iv) construction hours; v) construction program; vi) predicted construction traffic volumes and vehicle movements, types and routes including any known road closures and consideration of alternate routes; vii) details of construction vehicle movements including parking, dedicated vehicle turning areas and ingress and egress points; viii) loading and unloading; ix) details of management measures to minimise traffic impacts, including temporary road works and/or implementation of traffic control measures; x) pedestrian and traffic management methods; xi) any potential impacts to general traffic, cyclists, pedestrians and bus services within the vicinity of the site from construction vehicles during the works; xii) consideration of the cumulative construction traffic impacts of surrounding projects under construction, including those within the University of Sydney precinct. <p>Existing CTPMPs for developments within or around the Subject Site should be referenced in the CTPMP to ensure that the coordination of work activities are managed to minimise impacts on the surrounding road network; and</p> <ul style="list-style-type: none"> xiii) should impacts be identified, the duration of the impacts and measures proposed to mitigate any associated general traffic, public transport, pedestrian and cyclist impacts. <p>b) The Applicant must submit a copy of the CTPMP to the Secretary and City of Sydney</p>	Pre construction	C		<p>A CTMP has been prepared and addresses all the requirements of this condition. CTMP Rev 2.</p> <p>Email evidence was provided showing he plan had been provided to RMS and COS</p>

Reference	Requirement	Stage/timing	Compliance Status	Action Required	Comments
	Council, prior to the commencement of works.				
B25	The CTPMP (as revised from time to time) must be implemented by the Applicant for the duration of the construction works.	ALL	Note		
B26	<p>Prior to the commencement of construction works, or as otherwise agreed by the Secretary, the following must be made available for community enquiries and complaints for the duration of construction:</p> <p>a) a toll-free 24 hour telephone number(s) on which complaints and enquiries about the carrying out of any works may be registered;</p> <p>b) a postal address to which written complaints and enquires may be sent; and</p> <p>c) an email address to which electronic complaints and enquiries may be transmitted.</p>	ALL	C		<p>It was noted at the site inspection that signage on the hoarding included all requirements of this condition.</p> <p>A communication and stakeholder management plan has been prepared</p> <p>It is also noted that 24 hr contacts are included in Section 1.2 of the CEMP</p> <p>FDC/Sydney university updated the website to include the contact details as required by this condition following the first audit of the project.</p>
B27	<p>A Complaints Management System must be prepared prior to the commencement of any construction works and be implemented and maintained for the duration of these works.</p> <p>The Complaints Management System must include a Complaints Register to be maintained recording information on all complaints received about the development during the carrying out of any works associated with the development. The Complaints Register must record the:</p> <p>a) number of complaints received;</p> <p>b) number of people affected in relation to a complaint; and</p> <p>c) nature of the complaint and means by which the complaint was addressed and whether resolution was reached, with or without mediation.</p> <p>The Complaints Register must be provided to the Secretary upon request, within the timeframe stated in the request.</p>	ALL	C		<p>A communication and stakeholder management plan has been prepared and a community relations register has been set up detailing these requirements.</p> <p>The register is available at http://sydney.edu.au/museums/ccw-museum/con.shtml#6</p> <p>The register included one complaint/enquiry as dated 10/8/18.</p>
B28	Prior to the commencement of construction work the Applicant is to negotiate (where necessary) with the utility authorities (e.g. Ausgrid and telecommunication carriers) in connection with the relocation and/or adjustment of the services affected by the construction of the building structure.	Pre construction	C		Email to Paul Schenko (of Group DLA – the certifier) was provided showing that no telecommunications services would be impacted as a result of the works – email dated 6/6/18.
B29	Prior to the commencement of above ground works written advice must be obtained from the electricity supply authority, an approved telecommunications carrier and an approved	Pre construction	NT		This stage of works is for substructure works.

Reference	Requirement	Stage/timing	Compliance Status	Action Required	Comments
	gas carrier (where relevant) stating that satisfactory arrangements have been made to ensure provisions of adequate services.				
B30	The external walls of all buildings, including additions to existing buildings, must comply with the relevant requirements of the NCC. Prior to commencement of works, the Applicant must provide the Certifying Authority with documented evidence that the products and systems proposed for use external walls, including finishes and claddings such as synthetic or aluminium composite panels, comply with the requirements of the NCC. The Applicant must provide a copy of the documentation given to the Certifying Authority to the Secretary within seven days after the Certifying Authority accepts it.	Pre construction	NT		National Construction Code Compliance will be undertaken with Crown Certificate 3 (CC3) – fitout, services and Façade.
B31	A Pre-Construction Compliance Report must be prepared for the development, and submitted to the Certifying Authority for approval before the commencement of construction works. A copy of the endorsed compliance report must be provided to the Department at compliance@planning.nsw.gov.au before the commencement of construction works.	Pre construction	C		A letter to Group DLA – the independent certifiers has been sent from FDC, stating that they are compliant with all pre construction conditions. Email dated 8/6/18 showed that the pre-construction compliance report had been sent to compliance@planning.nsw.gov.au
B32	The Pre-Construction Compliance Report must include: a) details of how the terms of this consent that must be addressed before the commencement of construction have been complied with; and b) the expected commencement date for construction.	Pre construction	C		Email dated 8/6/18 showed that the pre-construction compliance report had been sent to compliance@planning.nsw.gov.au
B33	Prior to tree removal, tree hollows are to be checked by a qualified ecologist or wildlife carer for the presence of bats. Any bats found are to be relocated, unless in torpor, in which case relocation and tree removal is to be delayed until the end of the torpor period.	Pre construction	C		AMBS undertook a survey to check hollows and for the presence of bats and provided a report dated the 6 April 2018. 17 trees were inspected, and no hollows or evidence of bats were found.
B34 – B38	No later than one month before the commencement of construction works or within another timeframe agreed with the Secretary, a program of independent environmental audits must be prepared for the development in accordance with the latest version of AS/NZS ISO 19011-2014: Guidelines for Auditing Management Systems (Standards Australia, 2014) and submitted to the Secretary for information.	ALL	C		This has been sent to the Secretary and this audit is the third audit within the submitted audit plan. On the 27 September 2018, University of Sydney confirmed that they had sent the audit report 2 to DPE (evidenced by email dated 27/11/18 from Anthony Murphy Sydney University)

Reference	Requirement	Stage/timing	Compliance Status	Action Required	Comments
	<p>B35. The scope of each audit must be defined in the program. The program must ensure that environmental performance of the development in relation to each compliance requirement that forms the audit scope is assessed at least once in each audit cycle.</p> <p>B36. The environmental audit program prepared and submitted to the Secretary in accordance with conditions B35 and B36 above must be implemented and complied with for the duration of the development.</p> <p>B37. All independent environmental audits of the development must be conducted by a suitably qualified, experienced and independent team of experts and be documented in an audit report which:</p> <ul style="list-style-type: none"> a) assesses the environmental performance of the development, and its effects on the surrounding environment including the community; b) assesses whether the development is complying with the terms of this consent; c) reviews the adequacy of any document required under this consent; and d) recommends measures or actions to improve the environmental performance of the development, and improvements to any document required under this consent. <p>B38. Within three months of commencing an Independent Environmental Audit, or within another timeframe agreed by the Secretary, a copy of the audit report must be submitted to the Secretary, and any other NSW agency that requests it, together with a response to any recommendations contained in the audit report, and a timetable for the implementation of the recommendations. The recommendations must be implemented to the satisfaction of the Secretary.</p>				
SSD 7984 consent requirements PART C During Construction					
C1	A copy of the approved and certified plans, specifications and documents incorporating conditions of approval and certification must be kept on the Subject Site at all times and must be readily available for perusal by any officer of the Department, Council or the Certifying Authority.	Construction	C		The site inspection undertaken on the 5/12/18 found that relevant documentation is available at the site office
C2	<p>a) Construction, including the delivery of materials to and from the site, may only be carried out between the following hours:</p> <ul style="list-style-type: none"> i) between 7 am and 6 pm, Mondays to Fridays inclusive; and ii) between 7.30 am and 3.30 pm, Saturdays. <p>b) No work may be carried out on Sundays or public holidays.</p>	Construction	C		<p>Construction hours are clearly stated on the site entrances and in the induction material.</p> <p>Out of hours works are not occurring.</p>

Reference	Requirement	Stage/timing	Compliance Status	Action Required	Comments
	<p>c) Activities may be undertaken outside of these hours:</p> <p>i) if required by the Police or a public authority for the delivery of vehicles, plant or materials; or</p> <p>ii) if required in an emergency to avoid the loss of life, damage to property or to prevent environmental harm; or</p> <p>iii) works are inaudible at the nearest sensitive receivers; or</p> <p>iv) if a variation is approved in advance in writing by the Secretary or her nominee.</p> <p>d) Notification of such activities must be given to affected residents before undertaking the activities or as soon as is practical afterwards.</p>				
C3	<p>Rock breaking, rock hammering, sheet piling, pile driving and similar activities may only be carried out between the following hours:</p> <p>a) 9 am to 12 pm, Monday to Friday;</p> <p>b) 2 pm to 5 pm Monday to Friday; and</p> <p>c) 9 am to 12 pm, Saturday.</p>	Construction	C		<p>Rock breaking occurred during between September – early November 2018.</p> <p>Rock breaking activities have been subcontracted to Chalouhi as part of the Civil and Piling Package. A review of the contract shows that the requirement for Rock breaking to occur during only these hours is included in Section 1 Scope of work Item 9.</p> <p>FDC have confirmed that in their surveillance of Chalouhi that no rock breaking has occurred outside of these hours.</p>
C4	<p>The development must be constructed with the aim of achieving the construction noise management levels detailed in the Interim Construction Noise Guideline (Department of Environment and Climate Change, 2009). All feasible and reasonable noise mitigation measures must be implemented and any activities that could exceed the construction noise management levels must be identified and managed in accordance with the CNVMP required under condition B21.</p>	Construction	NC		<p>EMS undertook construction noise monitoring to test compliance with the construction noise management levels. Monitoring from 10-16th September 2018. The closest affect residences were determined to be on Arundel Street, Glebe.</p> <p>The construction noise management level in the CVMP is 65dBA. Exceedances of the construction levels did occur during the monitoring period on the 11, 12, 13 and 14 September. It is however noted that the exceedances were a maximum of 2dBA above the criteria and that the exceedances were only the measured peak Noise Level and not the measured average noise level.</p> <p>It is also noted that the largest exceedance of the criteria was on a Sunday when no construction noise occurred.</p>

Reference	Requirement	Stage/timing	Compliance Status	Action Required	Comments
					Therefore although there have been exceedances of the criteria; and as stated in the noise report “it is unknown which of the measured short-term noise exceedances above the 65 dB(A) criterion at the monitoring location were the result of works on site or other noise sources from the surrounding environment. “
C5	If the noise from a construction activity is substantially tonal or impulsive in nature (as described in Chapter 4 of the Noise Policy for Industry, 5 dB(A) must be added to the measured construction noise level when comparing the measured noise with the construction noise management levels.	Construction	Noted		
C6	The Applicant must ensure construction vehicles do not arrive at the Subject Site or surrounding residential precincts outside of the construction hours of work outlined under condition C2.	Construction	C		Out of hours works are not occurring. This was evidenced by a review of the site audits and monthly checklists and interviews with staff. Working hours are included in the Chalouhi sub contract under Section 1 item 9.
C7	The use of impact piling is not permitted.	Construction	Noted		
C8	The Applicant must schedule intra-day ‘respite periods’ for construction activities identified in the Interim Construction Noise Guideline (Department of Environment and Climate Change, 2009) as being particularly annoying or intrusive to noise sensitive receivers, including surrounding residents and nearby hospital buildings. These activities are to be carried out after 8 am only and over continuous periods no exceeding three hours (with at least a one hour respite every three hours).	Construction	C		Rock breaking is being undertaken by Chalouhi. The requirement for respite periods is included in the Chalouhi sub contract under Section 1 item 9. The monthly and weekly inspection checklists undertaken by FDC did not note any non compliance with the required respite periods.
C9	Wherever practical, and where sensitive receivers may be affected, piling activities are completed using bored piles. If driven piles are required they must only be installed where outlined in a CNVMP required under condition B21.	Construction	C		Piling is now complete, bored piles were used.
C10	The Applicant must implement, where practicable and without compromising the safety of construction staff or members of the public, the use of audible movement alarms of a type that would minimise noise impacts on surrounding noise sensitive receivers.	Construction	C		A range of movement alarms are implemented onsite. No complaints relating to noise have been received
C11	Any noise generated during construction of the development must not be offensive noise within the meaning of the Protection of the Environment Operations Act 1997 or exceed approved noise limits for the Subject Site.	Construction	NC		No complaints relating to noise have been received. Monitoring indicated that non compliance with the construction noise levels has occurred. Refer to C4 above for details.

Reference	Requirement	Stage/timing	Compliance Status	Action Required	Comments
C12	Vibration caused by the construction works at any residence or structure outside the Subject Site must be limited to: a) for structural damage vibration, German Standard DIN 4150 Part 3 Structural Vibration in Buildings. Effects on Structures; b) for human exposure to vibration, the evaluation criteria presented in British Standard BS 6472 – Guide to Evaluate Human Exposure to Vibration in Buildings (1 Hz to 80 Hz) for low probability of adverse comment; c) vibratory compactors must not be used closer than 30 metres from residential buildings unless vibration monitoring confirms compliance with the vibration criteria specified above; and d) these limits apply unless otherwise outlined in the CNVMP required under Condition B21 and submitted for the approval of the Certifying Authority.	Construction	NT		The NVMP prepared for the project indicates that vibratory impacts are unlikely.
C13	All waste generated during construction must be assessed, classified and managed in accordance with the Waste Classification Guidelines Part 1: Classifying Waste (EPA, 2014).	Construction	C		Only VENM is currently leaving the site and this is managed by the sub-contractor Chalouhi. Waste information is recorded in the truck run sheet and provided by Chalouhi. The waste contractor managed by Chalouhi is Grasshopper.
C14	The body of any vehicle or trailer used to transport waste or excavation spoil must be covered before leaving the premises to prevent any spillage or escape of any dust, waste of spoil. Mud, splatter, dust and other material likely to fall from or be cast off the wheels, underside or body of any vehicle, trailer or motorised plant leaving the site must be removed before leaving the premises.	Construction	C		Mentioned in the induction material and noted on site.
C15	The Applicant must ensure that concrete waste and rinse water are not disposed of on the Subject Site and are prevented from entering any natural or artificial watercourse.	Construction	C		Hoppers of concrete trucks are washed out in a bin.
C16	The Applicant is to consult with SafeWork NSW concerning the handling of any asbestos waste that may be encountered during construction. The requirements of the Protection of the Environment Operations (Waste) Regulation 2014 with particular reference to Part 7 – ‘Transportation and management of asbestos waste’ must also be complied with.	Construction	NT		No asbestos encountered
C17	If any unexpected archaeological deposits/relics are discovered during construction, then all works must cease immediately in that area and the OEH Heritage Division contacted in writing. Depending on the possible significance of the discovery, an archaeological assessment and management strategy may be required before further works can continue	Construction	NT		

Reference	Requirement	Stage/timing	Compliance Status	Action Required	Comments
	in that area. Works may only recommence with the written approval of the OEH Heritage Division.				
C18	In the event that surface disturbance identified an Aboriginal object, all works must halt in the immediate area to prevent any further impacts to the object(s). A suitably qualified archaeologist and the registered Aboriginal representatives must be contacted to determine the significance of the objects. The site is to be registered in the Aboriginal Heritage Information System (AHIMS) which is managed by OEH and the management outcome for the site included in the information provided to AHIMS. The Applicant must consult with the Aboriginal community representatives, the archaeologists and OEH, to develop and implement management strategies for all projects/site.	Construction	NT		
C19	Prior to commencement and for the duration of works, the tree protection measures outlined in the Arboricultural Impact Assessment, prepared by ArborSafe, dated 12 May 2017, are to be implemented and maintained.	Construction	C		<p>A review of the most recent Aborsafe Tree inspection checklist (3/12/18) found that all trees within the fenced tree protection Zone remained in fair to good health. It is noted that the Aborsafe have stated that the original plans used in the report dated in this condition have changed and there has subsequently been some encroachment in TPZ areas as a result. It is noted that all encroachments to the TPZ are within the accepted 10% range provided in the original Aborsafe report (May 2017). The following observations were made and summarised below.</p> <ul style="list-style-type: none"> Two trees (tree 29 & 30) were noted as having a slightly altered TPZ, which needs to be reinstated at the edge of the excavation. Tree 33 was also noted as having a slight change to the TPZ, but this change was considered acceptable by the Arborist. Tree 44 and 51 had an altered TPZ, however this was required for the installation for electrical conduit and the Arborist note that the tree is in good health. Tree 57 was noted as having some damaged branches which now require trimming, the tree was otherwise in good health.

Reference	Requirement	Stage/timing	Compliance Status	Action Required	Comments
					<ul style="list-style-type: none"> Tree 80 has had encroachment within the original TPZ assessed by Aborsafe due to later design changes to the approved project. Despite this the tree remains in good health, however it is noted that if any further encroachment the tree should be considered for removal due to encroachment to the root zone which could affect the stability of the tree. Works on Tree 1008 were within the TPZ, for necessary works on the Kiosk. The tree is very close to the kiosk and discussions are ongoing as to whether this tree can be retained so close to the kiosk. Discussions with FDC staff indicate that this work is now complete and that Tree 1008 will not be removed. <p>The arborist also requests that FDC confirm that watering at a rate of 10mm per week is occurring. NGH will confirm that there is documented evidence of this during the March 2019 audit (Audit #4), as well as fertilising certain select trees.</p>
C20	All erosion and sediment control measures, are to be effectively implemented and maintained at or above design capacity for the duration of the construction works and until such time as all ground disturbed by the works have been stabilised and rehabilitated so that it no longer acts as a source of sediment.	Construction	C		Erosion and sediment controls are being implemented. Stable concrete exit from the site has reduced any risk of mud tracking.
C21	Any seepage or rainwater collected on-site during construction or groundwater must not be pumped to the street stormwater system unless separate prior approval is given in writing by the relevant approval authority where necessary.	Construction	C		The report prepared by Coffey (2018) indicates that groundwater is not contaminated and can be discharged to stormwater following testing and correction (if required) of pH. A subcontractor has been engaged to manage groundwater flocculation, part of the flocculation process will involve regular testing of PH prior to any discharge.

Reference	Requirement	Stage/timing	Compliance Status	Action Required	Comments
					Rainwater has been discharged after the storm event on the 28 th November 2018. The Approved SWMP allows this water to be pumped to the pond below the works following treatment and testing against criteria. This testing has occurred and is detailed below in the CEMP obligations table.
C22	A Road Occupancy Licence must be obtained from the Transport Management Centre (RMS) for any works that impact on traffic flows on public roads or classified roads (as those terms are defined under the Roads Act 1993), during construction activities.	Construction	NT		
C23	The loading and unloading of construction materials must not be carried out on Parramatta Road in order to ensure the continued and unimpeded operation of existing public transport services.	Construction	C		All loading occurs in accordance with the traffic management plan for the site.
C24	<p>a) A site notice(s) must be prominently displayed at the boundaries of the Subject Site for the purposes of informing the public of project details including, but not limited to the details of the Builder, Certifying Authority and Structural Engineer.</p> <p>b) The site notice(s) is to satisfy all but not be limited to, the following requirements:</p> <p>i) minimum dimensions of the notice are to measure 841 mm x 594 mm (A1) with any text on the notice to be a minimum of 30 point type size;</p> <p>ii) the notice is to be durable and weatherproof and is to be displayed throughout the works period;</p> <p>iii) the approved hours of work, the name of the site/ project manager, the responsible managing company (if any), its address and 24 hour contact phone number for any inquiries, including construction/ noise complaint are to be displayed on the site notice; and</p> <p>iv) the notice(s) is to be mounted at eye level on the perimeter hoardings/fencing and is to state that unauthorised entry to the Subject Site is not permitted.</p>	Construction	C		This sign was erected at the time of the site inspection
C25	To protect the safety of work personnel and the public, the Subject Site must be adequately secured to prevent access by unauthorised personnel, and work must be conducted at all times in accordance with relevant Work Cover requirements.	Construction	C		Hoardings surrounds the site and the construction site was fenced at the time of the site inspection
C26	<p>The following hoarding requirements must be complied with:</p> <p>a) no third party advertising is permitted to be displayed on the subject hoarding/ fencing;</p>	Construction	C		Hoardings surrounds the site and the construction site was fenced at the time of the site inspection

Reference	Requirement	Stage/timing	Compliance Status	Action Required	Comments
	<p>b) the construction site manager must be responsible for the removal of all graffiti from any construction hoardings or the like within the construction area within 48 hours of its application; and</p> <p>c) the applicant must submit a hoarding application to Council for the installation of any hoardings over Council footways or road reserve.</p>				
C27	The public way, being land owned by Council or a Government agency (outside of any construction works zone), must not be obstructed by any materials, vehicles, refuse, skips or the like, under any circumstances. Non-compliance with this requirement will result in the issue of a notice by the relevant Authority to stop all works on site.	Construction	C		The public pathway was not obstructed on the date of the site inspection
C28	<p>At least 48 hours before the commencement of construction until the completion of all works under this consent, or such other time as agreed by the Secretary, the Applicant must:</p> <p>a) make the following information and documents (as they are prepared, obtained or approved) publicly available on its website:</p> <p>i) the documents referred to in condition A2 of this consent;</p> <p>ii) all current statutory approvals for the development;</p> <p>iii) all approved strategies, plans and programs required under the conditions of this consent;</p> <p>iv) regular reporting on the environmental performance of the development in accordance with the reporting arrangements in any plans or programs approved under the conditions of this consent;</p> <p>v) a comprehensive summary of the monitoring results of the development, reported in accordance with the specifications in any conditions of this consent, or any approved plans and programs;</p> <p>vi) a summary of the current stage and progress of the development;</p> <p>vii) contact details to enquire about the development or to make a complaint;</p> <p>viii) a complaints register, updated monthly;</p> <p>ix) audit reports prepared as part of any independent environmental audit of the development and the Applicant's response to the recommendations in any audit report;</p> <p>x) any other matter required by the Secretary; and</p> <p>b) keep such information up to date, to the satisfaction of the Secretary.</p>	Construction	NC	Update the Sydney University Website to include current versions of all plans.	The version of the CEMP and other plans on the university website are not up to date. The CEMP on the website is Rev A and the current version is Rev E

Reference	Requirement	Stage/timing	Compliance Status	Action Required	Comments
	<i>Note: This condition does not require any confidential information to be made available to the public.</i>				
C29	Within 24 hours of the occurrence of an incident that causes (or may cause) significant harm to the environment, the Applicant must notify the Secretary and any other relevant agencies of the incident in accordance with condition no. A15	Construction	NT		
C30	Within seven days of the detection of the incident, the Applicant must provide the Secretary and any relevant agencies with a detailed report on the incident, and such further reports as may be requested in accordance with condition no. A16.	Construction	NT		
C31	The Applicant must provide regular (six monthly) reporting on any environmental performance required by the development consent for the development on its project website, in accordance with the reporting arrangements in any plans or other documents approved under the conditions of this consent.	Construction	NC		A construction compliance report has been prepared. The link to the report is available on the website, however at the time of the audit the link to this report was not working. http://sydney.edu.au/museums//museums/pdfs/CCWM%20Construction/SSD%207894%20%20Construction%20Compliance%20Report.pdf
C32	The Applicant must ensure that all of its employees, contractors (and their sub-contractors) are made aware of, and are instructed to comply with, the conditions of this consent relevant to activities they carry out in respect of the development.	Construction	C		Relevant information is included in the site induction.
C33	Construction Compliance Reports must be submitted to the Department at compliance@planning.nsw.gov.au for information every six months from the date of the commencement of construction, for the duration of construction. The Construction Compliance Reports must provide details on the compliance performance of the development for the preceding six months and must be submitted within one month following the end of each six month period for the duration of the construction of the development, or such other timeframe as required by the Secretary.	Construction	C		The Compliance report has been prepared and was completed on the 4 December 2018. Construction commenced on the 7 June 2018 so this timing is in accordance with this condition.
C34	The Construction Compliance Reports must include: a) a results summary and analysis of environmental monitoring; b) the number of any complaints received, including a summary of main areas of complaint, action taken, response given and proposed strategies for reducing the recurrence of such complaints; c) details of any review of the CEMP and associated sub-plans as a result of construction carried out during the reporting period;	Construction	NC	Next Compliance report to include all	A review of the compliance report notes that it does not comply with the requirements of this condition in that does not include the results of all monitoring undertaken (item a).

Reference	Requirement	Stage/timing	Compliance Status	Action Required	Comments
	d) a register of any modifications undertaken and their status; e) results of any independent environmental audits and details of any actions taken in response to the recommendations of an audit; f) a summary of all incidents notified in accordance with this consent; and g) any other matter relating to compliance with the terms of this consent or as requested by the Secretary.			monitoring results	
C35	Unless the Applicant and the applicable authority agree otherwise, the Applicant must: a) repair, or pay the full costs associated with repairing, any public infrastructure that is damaged by carrying out the development; and b) relocate, or pay the full costs associated with relocating, any infrastructure that needs to be relocated as a result of the development.	Construction	NT		

CEMP Obligations						
Environmental Objectives and Targets						
CEMP 1.5	Aspect	Objective	Construction	C		
	Waste	To minimise waste going to landfill				
	Sediment & Erosion Control	To prevent sediment from entering waterways or stormwater				
	Water Quality	To prevent contamination of water ways				
	Noise & Vibration	To minimise noise and vibration				
	Dust	To limit dust				
Environmental Actions and monitoring table						
Dust generation(General)	<ul style="list-style-type: none">Install shade cloth on perimeter fencingVehicle corridors will be clearly identified and restricted to control vehicle access onsite.Limit vehicle speed onsite to 10km/hrFixed and mobile (water tanker) water spraysReduce work activities /stop work during moderate to high wind velocity periods.	Daily/Weekly	C		4A class hoarding around perimeter Daily pre starts occur by subcontractor, Chalouhi and then update the staging plan Weekly toolbox talks are undertaken by FDC Monday morning run through points of discussion. Weekly toolbox	

	<ul style="list-style-type: none"> Maintain equipment. Smokey plant to be stopped until repair works completed. • Turn off vehicle engines whilst not in use (no long periods of idling) 				talks were reviewed for the following dates 26/11, 19/11, 12/11, 8/11, 1/11, 25/10, 18/10, 12/10, 5/10, 27/9, 20/9, 14/9, 7/9.
Dust Generation (demolition)	<ul style="list-style-type: none"> Breakers and crushing equipment to be fitted with dust filtration equipment or water sprays to control dust emissions. 	Daily/Weekly	C		This is a standard requirement for this equipment.
Dust Generation (Construction)	<ul style="list-style-type: none"> Minimise areas of site disturbed and stage works where possible. Dust suppression strategies to be used, i.e. water sprays, soil binders, hydromulching, controlled speed onsite, roadbase + shaker grids. Stockpiled topsoils and rubble will be restricted to 4m high. Stabilise if insitu for >4-6months. On site drilling or coring operations will be undertaken by equipment fitted with air filtration equipment. 	Daily/Weekly	C		Site has not been wind affected due to hoarding and below ground works
Odour	<ul style="list-style-type: none"> If odorous materials uncovered, recover immediately. Seek advice from consultant regarding soil /materials management. 	Daily	NT		
Emissions to Air	<ul style="list-style-type: none"> Ensure machinery is maintained correctly 	Daily	C		Machinery pre start and machinery and maintenance log books are also regularly checked by FDC
Stormwater (Discharge from sedimentation basins, flooding)	<ul style="list-style-type: none"> Water quality to meet ANZECC Water Quality Guidelines. PH 6.5- 8.5, Turbidity <50NTU, No visible oil & grease Obtain advice for use of flocculants to settle sediment from water. Sedimentation pond to be maintained at low levels to ensure capacity during rainfall event. DO NOT DISCHARGE IF CONTAMINANTS SUSPECTED. Obtain advice. 	Daily/Weekly	NC		<p>Dewatering has occurred 18/9, 19/9, 21/9, 25/9, 19/10, 22/10, 24/10, 26/10, 29/10, 1/11, 2/11, 5/11, 7/11, 9/11, 12/11, 14/11, 16/11, 19/11, 21/11, 23/11, 20/11, 3/12.</p> <p>The NTU set in the CEMP is 50 NTU and 5 instances have occurred where the NTU is above this including on the 26/10, 29/10, 1/11, 2/11, and 9/11. pH was within the accepted range.</p>

<p>Adjoining waterways (dewatering, soil erosion & runoff)</p>	<ul style="list-style-type: none"> • Temporary drainage systems will be established to divert clean waters around the land development areas as appropriate. • Erect silt fences, bunds and construct swale drains. • Inspect at least weekly & after rainfall • Maintain and/or replace as required. • Street sweepers will be employed on regular basis • Install erosion and sediment controls before work starts. • Leave as much vegetation as possible. • Install temporary fences to define 'no go' areas in those areas that are not to be disturbed. Include the area under the canopy of trees so that tree roots will not be damaged by soil compaction. • Divert run-off from upslope away from the site, but ensure that you do not flood your neighbours. For example, dig drainage channels (catch drains sized to accommodate the upslope catchment). • Install sediment controls downslope of the site to catch sediment. • Check the erosion and sediment controls every day and keep them in good condition. • Leave or lay a kerbside turf strip (for example, the nature strip) to slow the speed of water flows and to trap sediment. • Limit vehicle entry and exit to one point, and lay geotextile and blue metal to stabilise it for all-weather access. • Clearly mark the access point and give an access map to all suppliers. • Protect all drains with a gravel sausage made from geotextile filled with blue metal. • Save the topsoil and stockpile it for use later in revegetation. Never place it around trees as this will kill them. • Store all stockpiles and building materials behind sediment fences. Cover them with plastic to prevent erosion by wind. • Get council approval before placing stockpiles or other materials on the nature strip or footpath. • Connect downpipes from the guttering to the stormwater drain as soon as the roof goes on. • Build a dam below the area used for cutting tiles, concrete and bricks. 	<p>Daily/Weekly</p>	<p>C</p>	<p>Concrete washout is in bin Chute /hopper is washed out in a bin</p> <p>Weekly checks are occurring</p> <p>The audit reviewed weekly checks for week commencing 26/11, 19/11, 12/11, 8/11, 1/11, 25/10, 18/10, 12/10, 5/10, 27/9, 20/9, 14/9, 7/9.</p> <p>No go areas are defined</p> <p>Sediment controls are in place.</p> <p>Gypsum is used to flocculate water in tanks prior to any discharge – refer above.</p>
--	---	---------------------	----------	---

	<ul style="list-style-type: none"> Surround the wash-out area with a sediment fence that slows down the water flow. Site this area upslope of another sediment control. Fill in all trenches immediately after services have been laid. Spread the topsoil back when the work is finished and revegetate the site as soon as possible to control erosion. Remove the sediment and erosion controls only after this is done. Sweep the road and footpath every day. Washing down is unacceptable. Never place any materials in the gutter or on the road. You will be fined for this. Filter or settle-out all water pumped off the site. The water must be clear before it enters the stormwater system or creeks. Gypsum can be applied to muddy (turbid) water to help clay particles settle 				
Sewer (Trade Waste)	<ul style="list-style-type: none"> Comply with the conditions of the trade waste consent or permit, or the local council approval, including acceptance standards No paints or other chemical to be poured down drains. If required, obtain trade waste licence for discharge or local council approval 	Daily/Weekly	NT		
Land (Acid sulphate soils, contaminated soils, imported fill)	<ul style="list-style-type: none"> Stop work if unexpected potentially contaminated soils are encountered. Obtain waste classification from consultant in accordance with OEH\EPACW\EPA guidelines Environmental Guidelines: Assessment, Classification & Management of Liquid & Non-Liquid Wastes (June 2004) www.environment.nsw.gov.au/waste/envguidlms/index.htm. Where required a Remediation Action Plan will be developed and implemented. Sign off by Site Auditor may be required to validate cleanup. Any groundwater or ponded rainwater will be tested and classified by consultants prior to disposal. • Check geotech requirements. Ensure soil classification suitable for land use ie. Schools, residential, commercial etc. 	As required	NT		
Resources – water, materials, energy	<ul style="list-style-type: none"> For design and construct jobs, refer to the design specification for ESD requirements and product choices. 	Daily/Weekly	NT		Works mainly involve excavation to date.

	<ul style="list-style-type: none"> Buy local wherever possible to reduce impacts of transport on environment. 				
Noise	<ul style="list-style-type: none"> Refer to DA for noise restrictions and working hours. Use hoarding or acoustic mats as required. Situate generators and plant away from sensitive receivers. Turn off machinery. Maintain equipment and stop noisy plant until repaired. Hours No early deliveries. 	Daily/Weekly	C		Working hours are restricted to normal hours as per the DA Hoarding has been erected Machinery pre starts are occurring
Vibration	<ul style="list-style-type: none"> Conduct dilapidation report prior to work starting. Limit the use of vibratory rollers, rock breakers, impact piling etc. adjacent to buildings (>7m). Regenerated noise may also transfer through bedrock and building structures. Obtain advice if required 	Daily/Weekly	C		Dilapidation reports were completed in May 2018 prior to the previous audit
Community Concerns	<ul style="list-style-type: none"> Provide information (e.g. Signage, letterbox drops) to community on programmed works Provide contact name for inquires. Advice locals of “noisy” work. If required in noise sensitive areas and/or in response to complaints, engage consultants to undertake monitoring at nominated receivers. • Vehicles will not be permitted to queue outside the site or in residential areas unless a defined area is established which does not adversely impact on neighbours. 	Daily/Weekly	C		No complaints around noise – only complaint to date has been in relation to traffic management. The complaint was around having to wait every day at stop go sign at entrance to university. Complainant was responded to on the next working day (Complaint was made on a Friday and responded to on Monday).
Flora	<ul style="list-style-type: none"> Review planning documentation to determine the presence of any protected, threatened or significant flora. Obtain approvals as required. Engage arborist to develop tree management plan or refer DA and arborist reports. Education and training at site toolbox meetings and induction. Report all sightings to the site manager. Fence or barricade protected flora at the drip zone. Erect Keep Out signage. 	Daily/Weekly	C		Arborist report was completed prior to construction. Fencing is maintained to protect trees Protection of vegetation is included in the induction. A further inspections has been undertaken by the arborist in July 2018 and a report

	<ul style="list-style-type: none"> Do not stack materials under/against trees. The potential for reuse of vegetative wastes by mulching, chipping or on-site placement of trunks or limbs shall be reviewed for each project. 				provided (refer to C19 above for details)
Fauna	<ul style="list-style-type: none"> All native animals protected. Review planning documentation to determine the presence of any protected, threatened or significant fauna. Obtain approvals as required. Site rules/induction to include information regarding of the For injured animals, to relocate call WIRES 	Daily/Weekly	C		Induction includes details on accidental harm.
Waste Litter	<ul style="list-style-type: none"> Hazardous materials surveys to be completed. Materials to be removed prior to demolition Registers and waste disposal requirements as per WorkCover and OEH\EPACW\EPA requirements for removal, storage, transport and disposal. General site wastes –use one bin system and sort in contractor’s yard to produce quantities of material for recycling, reuse, disposal etc. Empty drums are to be taken off-site for disposal. Empty drums shall be crushed prior to recycling/disposal. Do not overfill skip bins. Provide plenty for use. Cover where potential for windblown litter. 	Daily/Weekly	C		Chain of custody is on Chalouhi civil sub-contractors. At the moment this is recorded in the truck run sheet and provided by Chalouhi
Landfilling	<ul style="list-style-type: none"> Reduce, reuse and then dispose Dispose of hard construction wastes for recycled gravels and sands Do not send soil to landfill until alternatives for beneficial reuse have been explored as per consultant’s advice. Consideration should be given to chipping of the vegetation and reuse Reuse packaging to protect works 	As required	C		Waste register is being maintained. At present it is only excavated material that is being removed from site. This is removed as it is excavated
Chemicals	<ul style="list-style-type: none"> Chemicals to be stored in bunded areas (impervious + 110% of largest container) away from stormwater drains & pits. Refer SafeWork NSW Code of Practice for Storage & Handling of Dangerous Goods, OEH\EPACW\EPA Guidelines for Bunding & Spill 	Daily/Weekly	C		Very little chemical material stored on site. Bunded areas provided for fuels and chemicals.

	<p>Management. Appropriate chemicals storage is in conformance with:</p> <ul style="list-style-type: none"> AS 1940 The Storage and Handling of Flammable and Combustible Liquids Storage and Handling of Dangerous Goods WorkCover Code of Practice 2005– refer p. 86 OEHL\EPA requirements http://www.environment.nsw.gov.au/water/bundingspill.htm Ponded water within bunds will not be discharged to stormwater. Fuel and hydraulic leaks to be cleaned up immediately. Drilling muds to be contained within bunds and reused. Liquid paints NOT to be poured down drains. Spread on waste cardboard or similar and leave to dry. Paint brushes to be rinsed and paint solids allowed to settle. Container of paint solids to be disposed to liquid waste facility. Construct concrete washout pit for washout, away from stormwater drains. Send back to batch plant where possible. Concrete cuttings to be contained and wetvac to prevent runoff into stormwater drains. Storage of bulk fuels (>200L) on site is prohibited. All refuelling shall be undertaken by a mobile facility with appropriate spill control and containment control equipment. 				<p>Spill kits noted on site</p> <p>Concrete washout of the hopper is to a bin.</p>
Traffic	<ul style="list-style-type: none"> Develop and implement traffic management plans. Submit to local council as required. Signage and notices regarding disruptions. Use crushed concrete, mulches etc along site access roads. Install shakers and wheel wash as required. Organise regular street sweeping. Haulage routes and rules will be provided to subcontractors prior to commencing on site. All loads of soil, demolition wastes, general wastes etc are to be tarped 	Daily/Weekly	C		<p>Traffic management plan implemented</p> <p>Tarped trucks were noted at site visit</p> <p>The entry and exit point to the site has now been sealed limiting the requirement for street sweeping.</p>
Hazardous Materials (Lead paint)	<ul style="list-style-type: none"> If disturbing or removing dust or paint that could contain lead, wear a respirator or dust mask and protective clothing. Seal the rooms with plastic. 		NT		

	<ul style="list-style-type: none"> • Do not use open-flame torches on lead paint as they create lead fumes. If you must use a heat gun, use it on the lower setting to keep the paint temperature below 370 degrees C. • Avoid using dry-sanding techniques: keep the surface wet to minimise dust. • Don't sweep or use a domestic vacuum cleaner to clean up; lead dust will pass right through it. Use a high-efficiency particulate air (HEPA) vacuum cleaner. These can be hired. • When finished, wipe all surfaces with a damp cloth and high-phosphate detergent. • Wash face and hands before eating, drinking or smoking. • Refer to Lead Safe: A Renovator's Guide to the Dangers of Lead and the Australian Standard AS4361.2 Guide to Lead Paint Management: Part 2 Residential and Commercial Buildings 1998 				
Hazardous Materials (Asbestos)	<ul style="list-style-type: none"> • A licence subcontractor must be used to demolish, remove, repair or disturb asbestos. • A WorkCover asbestos licence is required to remove 10 square metres or more of bonded asbestos • A SafeWork licence is required to remove, repair or disturb friable asbestos 		NT		
Aboriginal heritage	<ul style="list-style-type: none"> • Education and training at site toolbox meetings and induction. • It is illegal to destroy heritage items. • Review local or regional environmental plans, or on the State Heritage Register is to be consulted prior to work starting onsite. • Obtain excavation permit issued by the Heritage Council of NSW if required. • Any heritage relics or sites discovered during construction shall be reported to the Office of Environment and Heritage. • Work in the subject area to cease until specialist advice is obtained. • The area will be fenced and signs erected to restrict access. • Heritage consultants may be required to provide advice on demolition/construction processes and finishes. 		C		Information included in induction No unexpected finds have occurred.
European heritage	<ul style="list-style-type: none"> • Education and training at site toolbox meetings and induction. • It is illegal to destroy heritage items. • Check the OEH\EPACW\EPA Aboriginal Heritage Information Management System (AHIMS). 		C		Information included in induction No unexpected finds have occurred.

	<ul style="list-style-type: none"> Also check the register of the National Estate. Obtain approval from NPWS (Section 90 consent). Any evidence of Aboriginal relics discovered during construction shall be reported to the National Parks and Wildlife Service. Local Land Council representatives may be required to monitor stripping/excavation. Work in the subject area to cease until specialist advice is obtained. <ul style="list-style-type: none"> The area will be fenced and signs erected to restrict access 				
Emergency Preparedness	<ul style="list-style-type: none"> Spill kit onsite. Refer to the MSDS for advice and procedures. All spills must be reported to the Site Manager & cleaned up. Complete FDC Accident /Incident report. Sediment pond pumped out regularly to maintain capacity in case of emergency Ensure you know where stormwater drains are and have materials to block them in case of a fire 		C		<p>Spill kits noted on site</p> <p>No sediment ponds are on site</p>

SUBPLANS

Reference	Requirement	Stage/timing	Compliance Status	Action Required	Comments
Waste Management plan					
2.1	The on-site separation of scrap metals such as aluminium, copper pipe and wire, lead and steel is viable. Bins will be identified clearly on sites to aid in the separation of materials. FDC will work together to reduce waste coming to site.		C		Waste is separated
2.1	Site conditions permitting separate on-site bins for cardboard and paper are also possible and FDC have committed to provide a paper bin for use on site for this purpose.		C		Waste is separated
Noise and Vibration Management plan					

Reference	Requirement	Stage/timing	Compliance Status	Action Required	Comments
5.2 Noise impact predictions	The noise management level is 65dBA LAeq(15min) for residential and education receivers and 70dBA LAeq(15min) for commercial receivers.		NC		Monitoring occurred between the 10-16 th September refer to C4 above for details. Some exceedances of the noise management levels have occurred.
6.1 Construction hours	<p>a) Construction, including the delivery of materials to and from the site, may only be carried out between the following hours:</p> <p>i) between 7 am and 6 pm, Mondays to Fridays inclusive; and</p> <p>ii) between 7.30 am and 3.30 pm, Saturdays.</p> <p>b) No work may be carried out on Sundays or public holidays.</p> <p>c) Activities may be undertaken outside of these hours:</p> <p>i) if required by the Police or a public authority for the delivery of vehicles, plant or materials; or</p> <p>ii) if required in an emergency to avoid the loss of life, damage to property or to prevent environmental harm; or</p> <p>iii) works are inaudible at the nearest sensitive receivers; or</p> <p>iv) if a variation is approved in advance in writing by the Secretary or her nominee.</p> <p>d) Notification of such activities must be given to affected residents before undertaking</p>		C		<p>Construction hours are clearly stated on the site entrances and in the induction material.</p> <p>Out of hours works are not occurring.</p>
6.1 rock breaking	<p>Rock breaking, rock hammering, sheet piling, pile driving and similar activities may only be carried out between the following hours:</p> <p>a) 9 am to 12 pm, Monday to Friday;</p> <p>b) 2 pm to 5 pm Monday to Friday; and</p> <p>c) 9 am to 12 pm, Saturday.</p>		C		<p>Rock breaking occurred during between September – early November 2018.</p> <p>Rock breaking activities have been subcontracted to Chalouhi as part of the Civil and Piling Package. A review of the contract shows that the requirement for Rock breaking to occur during only these hours is included in Section 1 Scope of work Item 9.</p>

Reference	Requirement	Stage/timing	Compliance Status	Action Required	Comments
					FDC have confirmed that in their surveillance of Chalouhi that no rock breaking has occurred outside of these hours.
6.2 Best management Practise	<ul style="list-style-type: none"> Implementing quiet work practices – Using equipment in ways to minimise noise, this includes reducing throttle setting and turning off equipment when not being used, i.e. trucks and saws. Distance – Provide as much distance from the noise source to the receivers as possible. Stationary machinery, especially, should be located at the south-eastern border of the site. Maintain equipment – Regularly inspect and maintain equipment to ensure it is in good working order. Also check the conditions of mufflers and keep the cutting saw sharp. Scheduling – Sensitive residential and educational receivers surround the site, therefore further time restrictions for intense work such as the rock breaking, drop sawing and hammer drilling works etc. could be utilised. See Section 6.1 for the scheduling given by City of Sydney for noisy activities. Limiting – Reduce the amount of machines or tools operating simultaneously near the receivers' location. 		C		Noise management measures are being implemented. No noise related complaints have occurred.
6.3 Best Available Technology Economically Achievable (BATEA) Noise Control	<ul style="list-style-type: none"> Substituting quieter equipment – examining different types of machinery that perform the same function and compare the noise level data to select the least noisy machine, examination includes tyre noise, exhaust and compressor/fan noise. For example, rubber wheeled tractors can be less noisy than steel tracked tractors. Adjusting reversing alarms on heavy equipment to make them 'smarter' by limiting the acoustic range to the immediate danger area or a broadband style alarm sometimes referred to as a 'quacker' alarm (See C10. from the Development Consent (Application No. SSD 7894)). 		C		Noise monitoring has occurred and some exceedances of the construction noise levels have occurred. The noise monitoring report recommends that some of these measure are implemented.

Reference	Requirement	Stage/timing	Compliance Status	Action Required	Comments
	<ul style="list-style-type: none"> High Performance Exhaust Mufflers could be fitted to the 30 and 50-tonne excavators working within the site. Silencers/mufflers are likely to reduce noise emission from 5 to 15dB. Pneumatic equipment is traditionally a problem – select silenced damped bits where possible. 				
6.4 acoustic screens	<p>The barrier should have the following properties:</p> <ul style="list-style-type: none"> Material having at least 10 kg/m² surface density. There should be no gaps or openings at joints in the barrier material. 		NT		Hoarding has been erected but acoustic barriers have not been required. Barriers are unlikely to be required due to noisy background environment (Parramatta Road) and absence of noise complaints.
6.5 Vibration Mitigation Control	<ul style="list-style-type: none"> Place as much distance as possible between the excavation work and the surrounding pedestrians/properties. Distance is one of the most effective mitigation measures against vibration. Organise high impacting operations so as not to occur in the same time period. Conduct lower impact methods wherever possible, including the following: Orientation of the rock hammer away from property boundaries and into open excavation; and Operate excavator hammering in short bursts only, to reduce amplification of vibrations and the rise of noise. 		C		<p>Rock breaking occurred during between September – early November 2018.</p> <p>Rock breaking activities have been subcontracted to Chalouhi as part of the Civil and Piling Package. A review of the contract shows that the requirement to comply with the NVMP is included in the contract.</p>
6.6 Noise and Vibration Monitoring	<ul style="list-style-type: none"> Unattended noise monitoring be undertaken at a nearby residential receiver either continuously throughout the project or during the first week of the excavation, substructure and structure stages to ensure noise levels are not excessive. Attended short term noise measurements may also be taken during the various stages, to ensure noise levels are complying with the noise criterion. Noise monitoring during high construction activities and/or after a complaint should be undertaken to monitor the noise impact at the affected receiver. 		C		The frequency of noise monitoring is not stated in the COA or the sub plan, therefore FDC complies with this condition. Monitoring has occurred refer to C4 above for detail.

Reference	Requirement	Stage/timing	Compliance Status	Action Required	Comments
	<ul style="list-style-type: none"> Vibration monitoring is not required at the University of Sydney buildings surrounding the site nor the residential buildings across Parramatta Road due to the distance between site and the aforementioned buildings. Vibration monitoring should be undertaken adjacent to the pedestrian walkways surrounding the site should complaints arise. 				
Consultation	<ul style="list-style-type: none"> Provide, reasonably ahead of time, information such as total building time, what works are expected to be noisy, their duration, what is being done to minimise noise and when respite periods will occur. For works outside standard hours, inform affected residents and other sensitive land use occupants between five and 14 days before commencement. Provide information to neighbours before and during construction through media such as letterbox drops, meetings or individual contact. In some areas, the proponent will need to provide notification in languages other than English. A website could also be established for the project to provide information. Use a site information board at the front of the site with the name of the organisation responsible for the site and their contact details, hours of operation and regular information updates. This signage shall be clearly visible from the outside and include afterhours emergency contact details. Maintain good communication between the community and project staff. Appoint a community liaison officer where required. For larger projects consider a regular newsletter with site news, significant project events and timing of different activities. Provide a toll free contact phone number for enquiries during the works. Facilitate contact with people to ensure that everyone can see that the Site Manager understands potential issues, that a planned approach is in place and that there is an ongoing commitment to minimise noise. 		C		<p>No night works has occurred</p> <p>Information regarding the project is available on the university website for the project.</p>

Reference	Requirement	Stage/timing	Compliance Status	Action Required	Comments
Complaint management	<ul style="list-style-type: none"> • Provide a readily accessible contact point, for example through 24 hour toll free information and complaint's line. • Give complaints a fair hearing. • Have a documented complaints process, including an escalation procedure so that if a complainant is not satisfied there is a clear path to follow. • Call back as soon as possible to keep people informed of action to be taken to address noise problems. Call back at night time only if requested by the complainant to avoid further disturbance. • Provide a quick response to complaints, with complaints handling staff having both a good knowledge of the project and ready access to information. • Keep a register of any complaints, including details such as date, time, person receiving complaint, complainant's phone number, person referred to, description of the complaint, work area (for larger projects), time of verbal response and timeframe for written response where appropriate 		C		

6 Appendix 2: Noise Monitoring Report



NOISE MONITORING REPORT

PROPOSED CHAU CHAK WING MUSEUM
PART OF THE UNIVERSITY OF SYDNEY
CAMPERDOWN NSW 2050

FDC Construction (NSW) Pty Ltd

22-24 Junction Street,
Forest Lodge NSW 2037


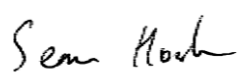
MONITORING PERIOD
10th – 16th September 2018

CONTRACT NO C18 7845
REPORT NO EMS18 6118-R3

TABLE OF CONTENTS

1.	Introduction	4
1.1	Project Description.....	4
1.2	Site Location.....	4
2.	Noise Monitoring	6
2.1	Methodology.....	6
3.	Criteria.....	6
3.1	Noise Criteria.....	6
4.	Results.....	8
4.1	Noise Monitoring Results.....	8
5.	Discussion.....	9
5.1	Noise Analysis	9
5.2	Noise Mitigation Strategies.....	9
6.	Conclusions	11
	References	11
	Appendix A – Monitoring Results	12

PREPARED FOR:	PREPARED BY:
FDC Construction (NSW) Pty Ltd	Environmental Monitoring Services Pty Ltd
22-24 Junction Street Forest Lodge NSW 2037	First Floor, 935 Botany Road, Mascot NSW 2020
Name: Tom Barwise	ABN 13 050 039 177
Phone: 0412 169 708	Phone No: (02) 9317 0100
Email: tomba@fdcbuilding.com.au	Fax No: (02) 9317 0122

AUTHOR: 	Neil Vyas MArchSci (Audio and Acoustics) Acoustic Consultant	Date: 21.09.2018
CHECKED BY: 	Sean Hook MArchSci (Audio and Acoustics) Acoustic Consultant	Date: 21.09.2018
APPROVED FOR RELEASE BY: 	Mark Wagner Director	Date: 21.09.2018

DISCLAIMER

This report is valid only in its entire form. Unauthorised reproduction or copying is strictly prohibited. Environmental Monitoring Services have prepared this document and information herein specifically for the purposes of the client in accordance with general professional consulting standards. The findings of this document apply specifically to this project only and are based partially on advice provided by the client. The scope of works was conducted in accordance with the scope of the project brief only. The document may not contain sufficient information other than for the purposes of the client, and no other warranty is made as to the professional advice in this report.

DOCUMENT CONTROL

COPY No: 1

REVISION HISTORY

Revision No	Date Issued	Reason/ Comments
1	14.01.2019	Added discussion on noise exceedances and traffic noise emissions from Parramatta Rd

DISTRIBUTION

Copy No	Revision No	Destination
1	1	FDC Construction (NSW) Pty Ltd
1	1	Environmental Monitoring Services Pty Ltd

Introduction

1.1 Project Description

EMS was commissioned by FDC Construction (NSW) Pty Ltd to provide noise monitoring at the residences located along Arundel Street, Glebe during the excavation stage of the proposed Chau Chak Wing Museum at The University of Sydney, Camperdown NSW (the site). The project comprises the demolition of the existing tennis courts and the construction of a museum building equivalent to three levels above ground and four basement levels.

A Construction Noise and Vibration Management Plan for the the works was created by EMS in July 2018 (ref: EMS18 5803 R2) that established a noise criterion for the residential receivers along Arundel Street, Glebe. The criterion can be used to assist in maintaining noise level amenity for the residences, as well as comparing and controlling noise emission from the site.

1.2 Site Location

The site is located within the grounds of the University of Sydney around the area of tennis courts formerly known as the Women's Tennis Courts. The rectangular shaped site is bounded by University Avenue to the east and south, Parramatta Road to the north and University Place to the west.

Likely affected nearby residential receivers are located to the north of the site and are identified as being located along Arundel Street, Glebe.

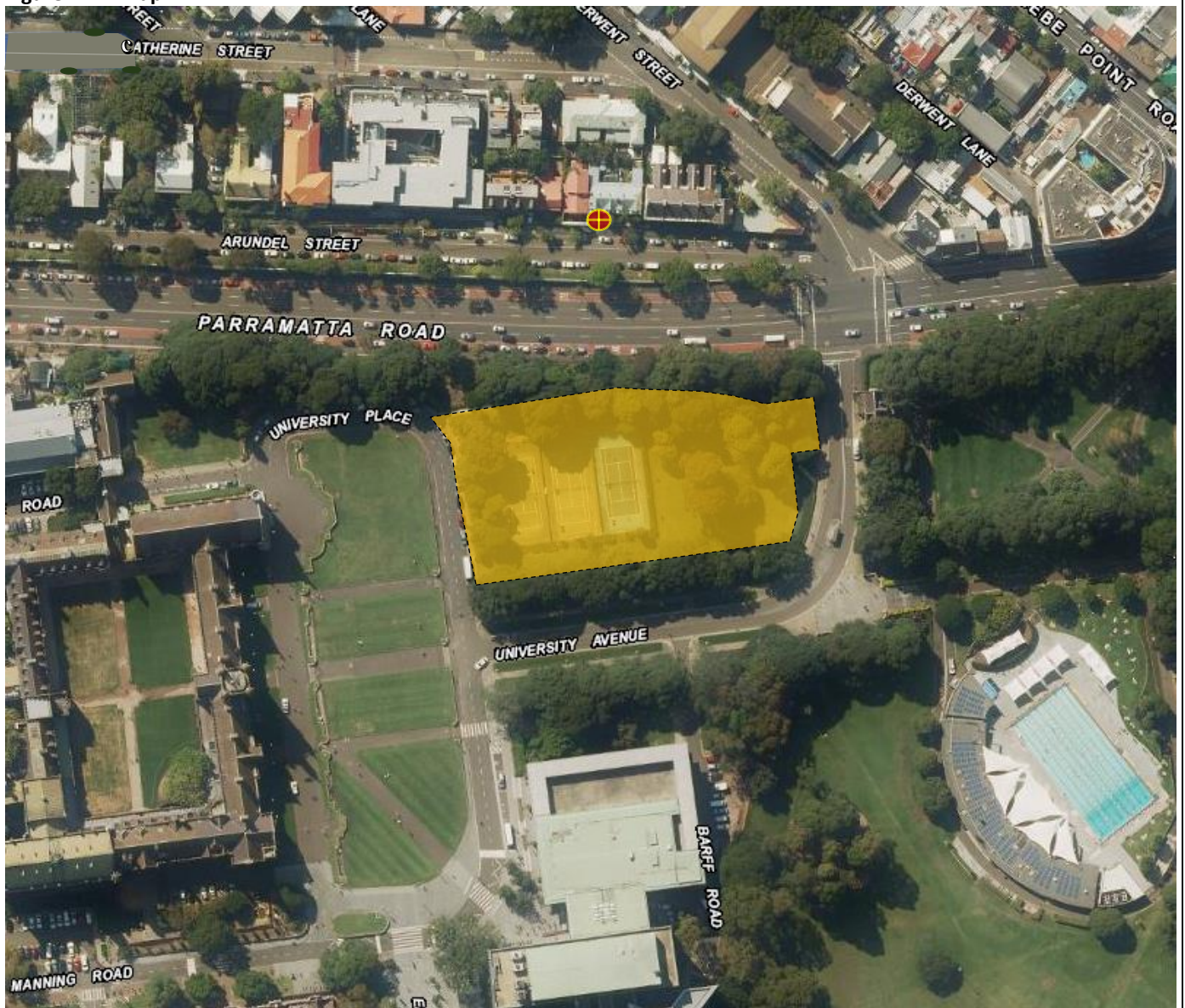
These locations are outlined in Table 1.1

Table 1.1 –Noise Monitoring Location

Noise Monitoring Location
13 Arundel Street, Glebe

Figure 1.1 on the following page outlines the noise monitoring location.

Figure 1.1 – Map



Map Source: SIX Maps



Legends

- Site (Chau Chak Wing Museum)
- Noise Monitor Location

Site Address:

Part of The University of Sydney,
 Camperdown NSW

Contract No.: C18 7845

Report No.: EMS18 6118-R3

2. Noise Monitoring

2.1 Methodology

Unattended noise monitoring was conducted between the 10th and 16th of September 2018, using the ARL EL-215 noise logger. A field calibration check was performed on the unit prior to and after monitoring and no significant drift was found.

The noise logger was set to record 'A' weighted statistical sound pressure levels (SPL) with 15-minute intervals using a 'fast response'. The noise logger was installed at a residential address on the front porch facing and Arundel Street and Parramatta Road with the noise logger's microphone approximately 1.3 metres from the porch.

The background noise level will be represented by the L_{A90} as outlined in the NSW Noise Policy for Industry (2017). The L_{A90} represents the sound pressure level that is exceeded for 90% of the measurement period and is considered to represent the background noise.

The noise logger also collected the L_{Aeq} ; this represents the level of noise equivalent to the energy average of noise levels occurring over a measurement period. The L_{A10} was also obtained; this is the sound pressure level that is exceeded for 10% of the measurement period.

3. Criteria

3.1 Noise Criteria

The Construction Noise and Vibration Management Plan for the proposed works prepared by EMS in July 2018 (ref: EMS18 5803 R2) established the Rating Background Level (RBL) and noise criteria for the location.

The summary of these RBL findings appears in Table 3.1 below -

Table 3.1 – Summary of the Rating Background Levels for Stockpile Site – 29-31 Pinnacle Street, Miranda

Time of Day	Rating Background Level (RBL)
Day Time (07:00 – 18:00)	55
Evening Time (18:00 – 22:00)	53
Night Time (22:00 – 07:00)	43

External Noise Criteria will be in compliance with the EPA's Interim Construction Noise Guideline (ICNG), regulated by the EPA and is aimed to manage noise from construction work. The main objectives of the guidelines are:

- To protect the majority of residences and other sensitive land uses from noise pollution most of the time.
- Identify and minimise noise from construction works.
- Applying 'feasible' and 'reasonable' work practices to minimise construction noise.
- Encouraging construction to be undertaken only during least sensitive noise periods.

Table 3.2 – Applicable Residential Noise Criteria (taken form the ICNG, 2009)

Time of Day	Management Level, L_{Aeq} , 15 mins	How to Apply
Recommended Standard Hours: Monday to Friday 7 am to 6 pm Saturday 8 am to 1 pm No work on Sundays or public holidays	Noise Affected RBL + 10 dB Based on monitored levels, project specific management level is Day: 07:00 – 18:00 65 dB(A)	<p>The noise affected level represents the point above which there may be some community reaction to noise.</p> <ol style="list-style-type: none"> Where the predicted or measured L_{Aeq} (15 min) is greater than the noise affected level, the proponent should apply all feasible and reasonable work practices to meet the noise affected level. The proponent should also inform all potentially impacted residents of the nature of works to be carried out, the expected noise levels and duration, as well as contact details.
	Highly Noise Affected 75 dB(A)	<p>The highly noise affected level represents the point above which there may be strong community reaction to noise.</p> <p>Where noise is above this level, the relevant authority (consent, determining or regulatory) may require respite periods by restricting the hours that the very noisy activities can occur, taking into account:</p> <ol style="list-style-type: none"> Times identified by the community when they are less sensitive to noise (such as before and after school for works near schools, or mid-morning or mid-afternoon for works near residences) If the community is prepared to accept a longer period of construction in exchange for restrictions on construction times.
Outside recommended standard hours	Noise Affected RBL + 5dB Evening: 18:00 – 22:00 58 dB(A) Night: 22:00 – 07:00 48 dB(A)	<ul style="list-style-type: none"> A strong justification would typically be required for works outside the recommended standard hours The proponent should apply all feasible and reasonable work practices to meet the noise affected level. <ul style="list-style-type: none"> Where all feasible and reasonable practices have been applied and noise is more than 5dB (A) above the noise affected level, the proponent should negotiate with the community.

4. Results

4.1 Noise Monitoring Results

No rainfall fell during the monitoring period as determined by the *Bureau of Meteorology's* Observatory Hill weather station data. All the noise data affected by winds over 5m/s at microphone height was excluded from the results. The wind speeds at the microphone height were calculated from the *Bureau of Meteorology's* Fort Denison weather station data using the method described in a paper titled "*Converting Bureau of Meteorology wind speed data to local wind speeds at 1.5m above ground level*".

Table 4.1, outlines the noise levels collected from the monitoring location found in Figure 1.1, represented in L_{Aeq} . The L_{Aeq} results in the tables below are the logarithmic averages of all 15-minute L_{Aeq} results within the time frame 07:00 am and 18:00 pm and the $L_{Aeq, 15\text{-minute}}$ results are the peak 15-minute L_{Aeq} results in that time frame.

Table 4.1 – Measured noise levels at the monitoring location during Day Time.

Date	Measured Average Noise Level ($L_{Aeq, \text{day}}$)	Measured Peak Noise Level ($L_{Aeq, 15 \text{ minute}}$)	Noise Criteria ($L_{Aeq, 15 \text{ minute}}$)
10/09/2018	63.2	64.5	65
11/09/2018	63.5	66	65
12/09/2018	62.9	65.5	65
13/09/2018	64.8	67	65
14/09/2018	63.2	66	65
15/09/2018	61.4	63	65
16/09/2018 (Sunday)	62.8	69.5	65

5. Discussion

5.1 Noise Analysis

The average L_{Aeq} noise levels were found to be within the noise criteria on all days of this monitoring period. The peak $L_{Aeq, 15\text{-minute}}$ noise levels were found to be slightly above the noise criteria on four days, from the 11th – 14th of September 2018. However, noise peaks at or above the criteria can be observed in the noise graph in Appendix A during non-construction hours, particularly on the 16th of September.

On the 11th – 12th & 14th of September 2018, the peak $L_{Aeq, 15\text{-minute}}$ noise levels exceeded the noise management level either by 0.5 dB(A) or 1 dB(A). A 1 dB difference in noise is barely perceptible. Section 11.1.3 of the Industrial Noise Policy NSW, states:

'A development will be deemed to be in non-compliance with a noise consent or licence condition if the monitored noise level is more than 2 dB above the statutory noise limit specified in the consent or licence condition.'

The Worked Case Study E3 from the Noise Policy for Industry (2017) gives an example where a 1 dB residual noise level is deemed to represent a negligible impact and adopted as an acceptable performance.

Noise monitoring was conducted by EMS at 3 Arundel Street, Glebe in May 2018 prior to the commencement of site works to prepare a Construction Noise and Vibration Management Plan (ref: EMS18 5803 R2). Table 5.1 below outlines the noise monitoring results from May 2018 when no construction activities were carried out on site.

Table 5.1 – Measured noise levels at 3 Arundel Street, Glebe during Day Time – May 2018

Date	Measured Average Noise Level ($L_{Aeq, day}$)	Measured Peak Noise Level ($L_{Aeq, 15\text{ minute}}$)
01/05/2018	62.6	64.5
02/05/2018	63.1	66
03/05/2018	63.2	67.5
04/05/2018	63.7	67
05/05/2018	62.5	65
06/05/2018	62.1	65.5
07/05/2018	63.3	65.5

Comparing the noise results from this monitoring period (Table 4.1) with the noise monitoring results from May 2018 (Table 5.1), similar noise levels can be observed.

It is unknown which of the measured short-term noise exceedances above the 65 dB(A) criterion at the monitoring location were the result of works on site or other noise sources from the surrounding environment. It should be noted that the noise levels at the monitoring location would be affected by continuous traffic flow along Parramatta Road. Parramatta Road is a busy road and high traffic noise levels

are expected at the receiver locations at all times of the day. The Rating Background Level at the receiver location (3 Arundel St) was measured at 55/53/43 dB(A) for daytime/evening/night-time periods respectively.

Noise emitted from the site may have caused slight annoyance at the residential noise receivers for short periods when the $L_{Aeq, 15\text{-minute}}$ noise levels were above the criteria.

5.2 Noise Mitigation Strategies

Best Management Practice (BMP) is the adoption of particular operational procedures that minimise noise while retaining productive efficiency. BMP procedures include:

- Keeping truck drivers informed of designated vehicle routes, parking locations, acceptable delivery hours or other relevant practices (for example, minimising the use of engine brakes and no extended periods of engine idling).
- Siting noisy equipment – place as much distance as possible between the equipment and residences. If possible, place noisy equipment behind structures or mounds that act as barriers.
- If more than one item of noise machinery is near residential properties, then schedule the operations of noisy equipment to operate on separate times rather than simultaneously.
- Limiting noisy activities (i.e. pulverising), to allow respite for surrounding receivers. For example, from 7am to 11am and 2pm to 5pm Monday to Friday. Pulverising should only be done on weekdays and not on weekends. If pulverising is necessary on Saturday, it should be done from the hours of 10am to 1pm, to avoid waking the neighbours before 10am.

If the steps outlined above have been taken but still exceed the construction noise management level or if for some reason the BMP cannot be applied, then 'Best Available Technology Economically Achievable' (BATEA) noise strategy should be implemented.

BATEA is a noise mitigation strategy based on equipment, plant and machinery modification to minimise noise output.

The following BATEA strategies are to be implemented:

- **Substituting quieter equipment** – examining different types of machinery that perform the same function and compare the noise level data to select the least noisy machine, examination includes tyre noise, exhaust and compressor/fan noise. For example, rubber wheeled tractors can be less noisy than steel tracked tractors.
- **Adjusting reversing alarms** on heavy equipment to make them 'smarter' by limiting the acoustic range to the immediate danger area or a broadband style alarm sometimes referred to as a 'quacker' alarm.
- **High Performance Exhaust Mufflers** could be fitted to the Excavators working within the site. Silencers/mufflers are likely to reduce noise emission from 5 to 15dB.
- **Pneumatic equipment** is traditionally a problem – select silenced jackhammers and damped bits where possible.

6. Conclusions

Environmental Monitoring Services carried out noise monitoring at residences along Arundel Road, Glebe between the 10th and 16th of September 2018 during the excavation stage of the proposed Chau Chak Wing Museum with the grounds of The University of Sydney, Camperdown. The purpose of the assessment was to measure the noise levels generated on site and compare the noise results against the noise criteria established for the location.

The average L_{Aeq} noise levels were found to be within the noise criteria on all days of this monitoring period. The peak $L_{Aeq, 15\text{-minute}}$ noise levels were found to be slightly above the noise criteria on four days, from the 11th – 14th of September 2018. However, noise peaks at or above the criteria can be observed in the noise graph from Appendix A during non-construction hours, particularly on the 16th of September.

Comparing the noise results from this monitoring period (Table 4.1) with the noise monitoring results measured prior to the construction works (Table 5.1), similar noise levels can be observed.

It is unknown which of the measured short-term noise exceedances above the 65 dB(A) criterion at the monitoring location were the result of works on site or other noise sources from the surrounding environment. **It should be noted that the noise levels at the monitoring location would be affected by continuous traffic flow along Parramatta Road which has high traffic noise levels during all time periods (daytime, evening and night-time).** (See Section 5.1 for further discussion)

Noise emitted from the site may have caused slight annoyance at the residential noise receivers for short periods when the $L_{Aeq, 15\text{-minute}}$ noise levels were above the criteria.

Section 5.2 gives an outline of recommended noise mitigation strategies to attenuate the noise emitting from the work site.

The chart attached in Appendix 'A' displays the comparison of the noise level recorded during monitoring period.

References

EPA's Publication - Noise Policy for Industry (2017)

EPA's publication Interim Construction Noise Guideline

Noise Control Manual

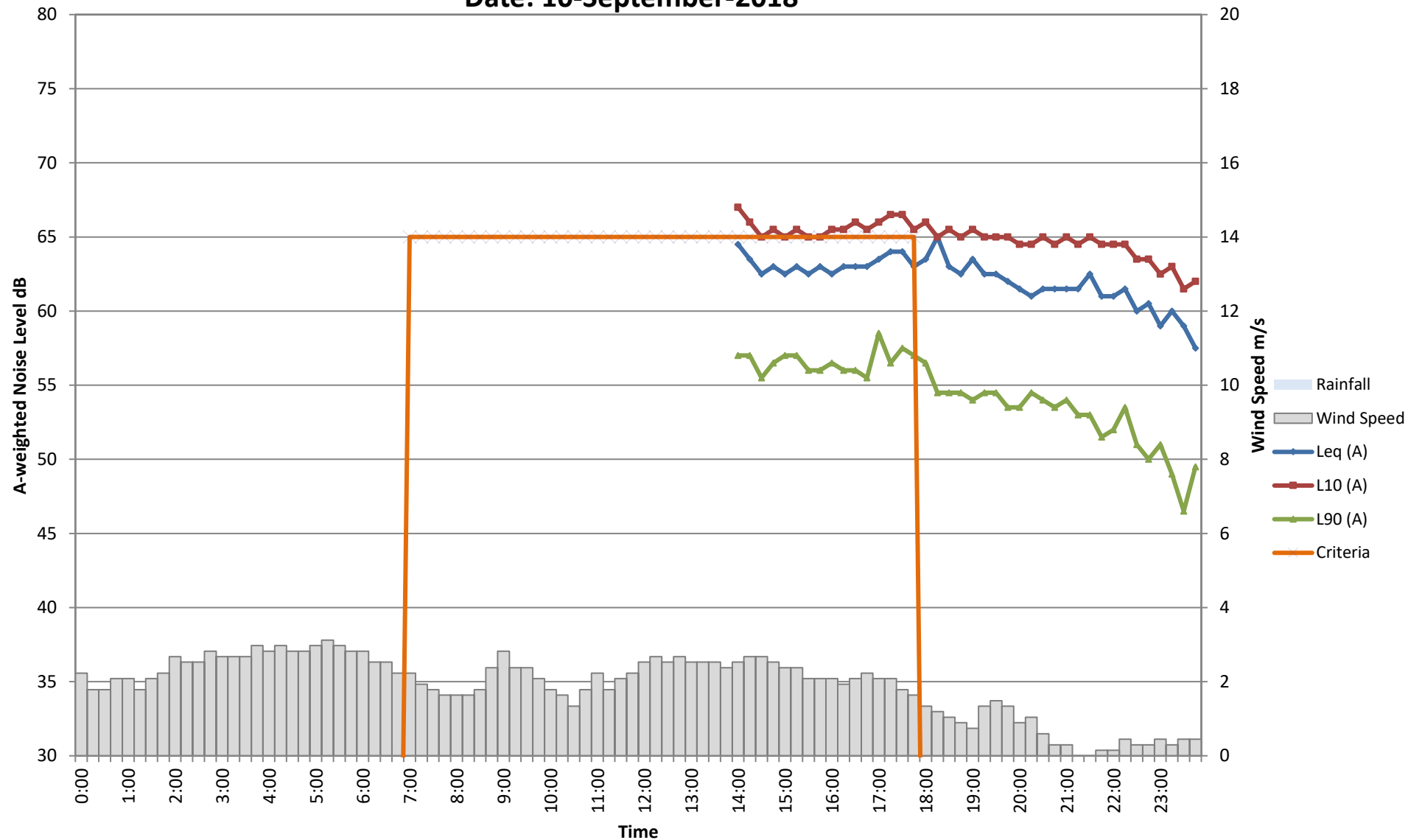
Australian Standard AS 2436 – 1981: Guide to Noise Control on Construction, Maintenance and Demolition Sites

Construction Noise and Vibration Management Plan by Environmental Monitoring Services (ref: EMS18 5803 R2) – July 2018

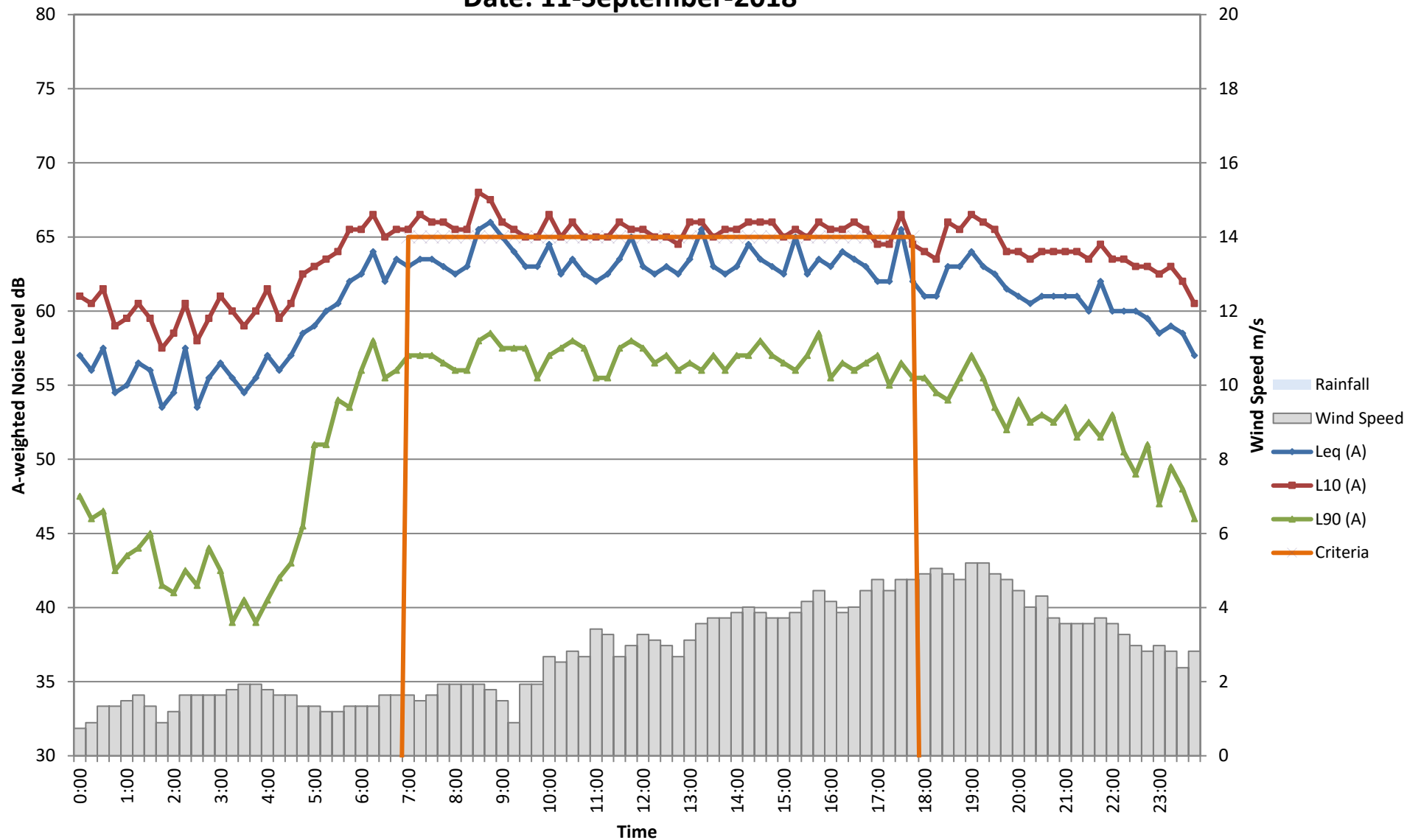
Gowen, T., Karantonis, P. and Rafail, T. (2004). Converting Bureau of Meteorology wind speed data to local wind speeds at 1.5m above ground level. In: Acoustics 2004. Gold Coast, pp.57-61.

Appendix A – Daily Monitoring Results

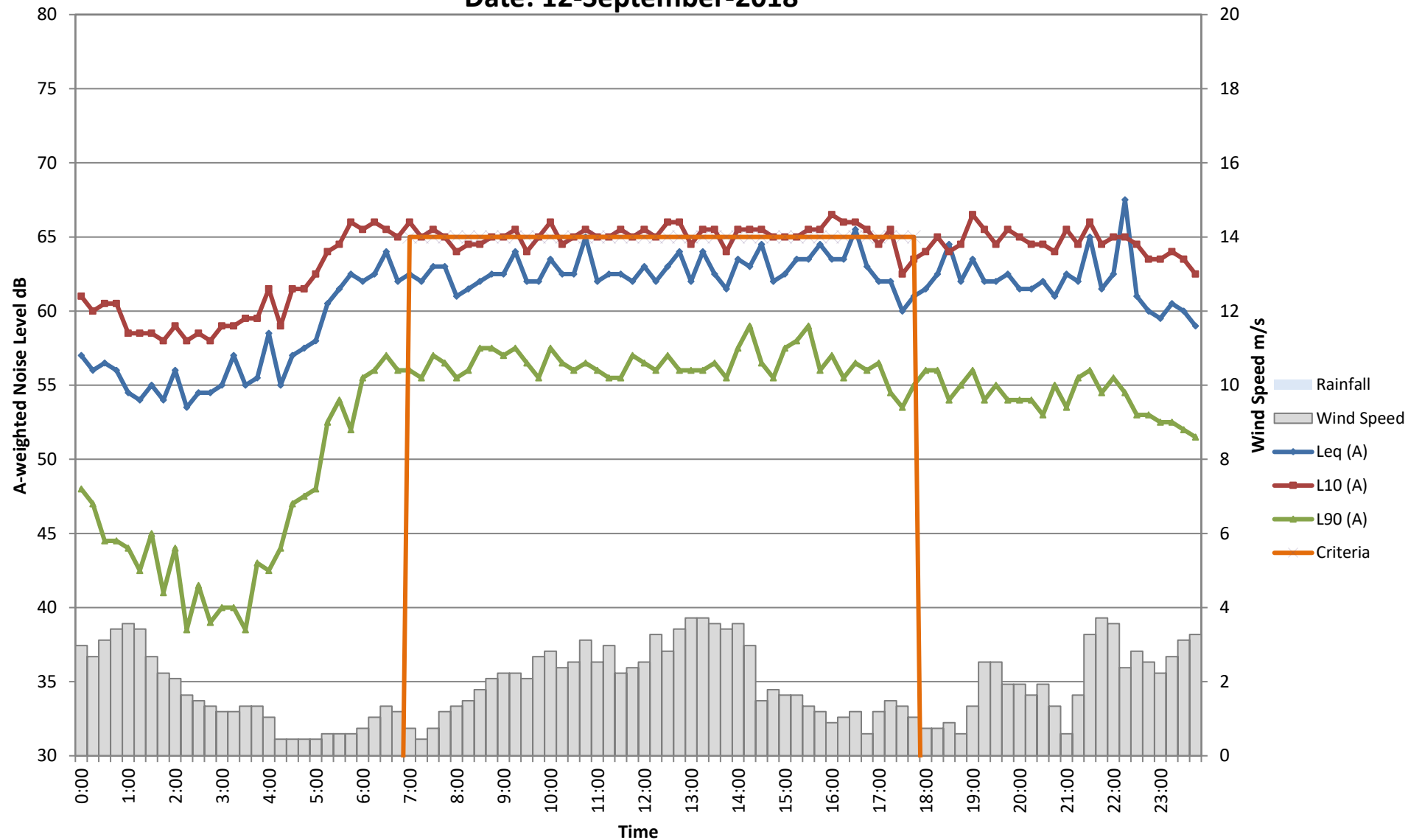
Noise Level Measurements
Monitor Location: 13 Arundel Street, Glebe
Date: 10-September-2018



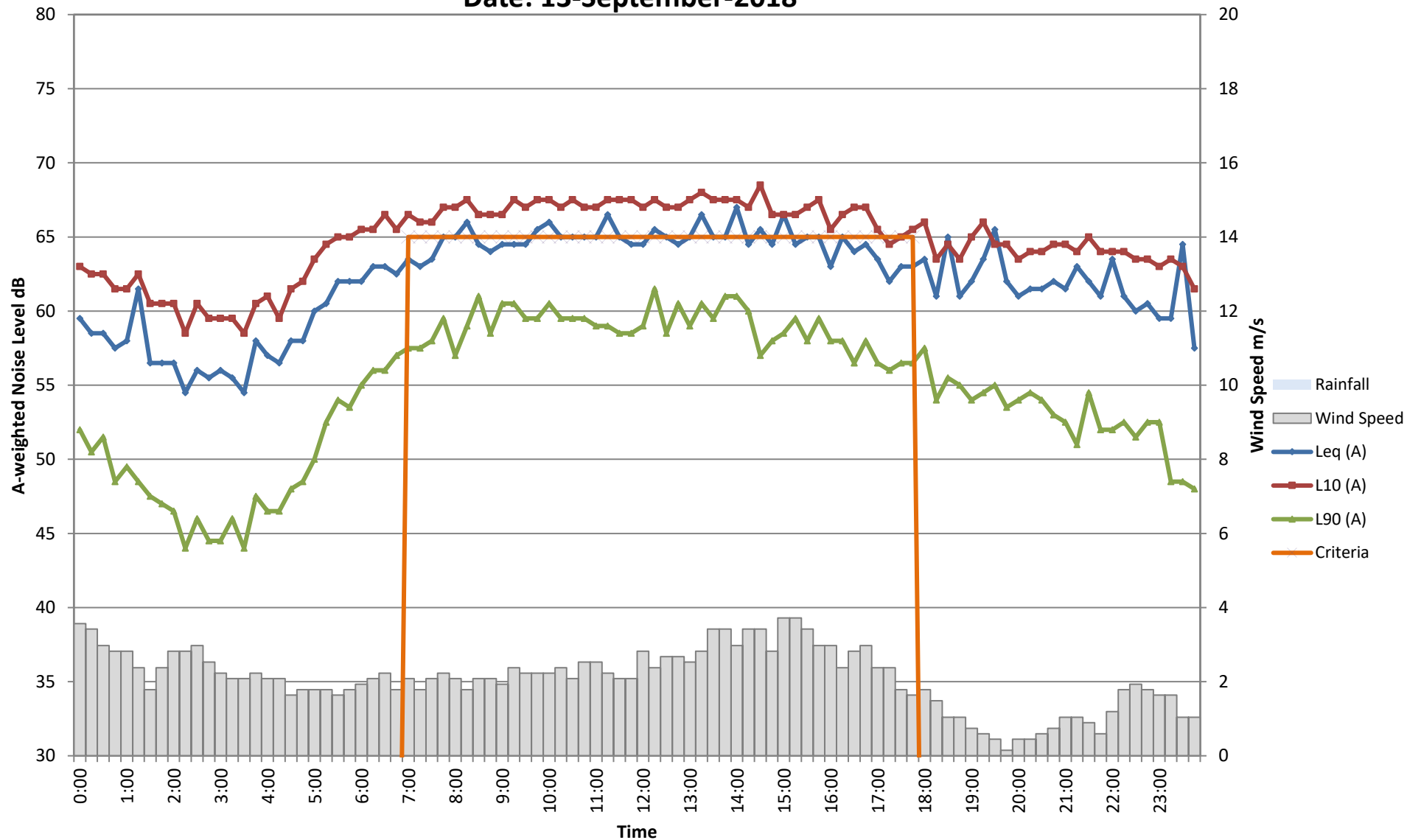
Noise Level Measurements
Monitor Location: 13 Arundel Street, Glebe
Date: 11-September-2018



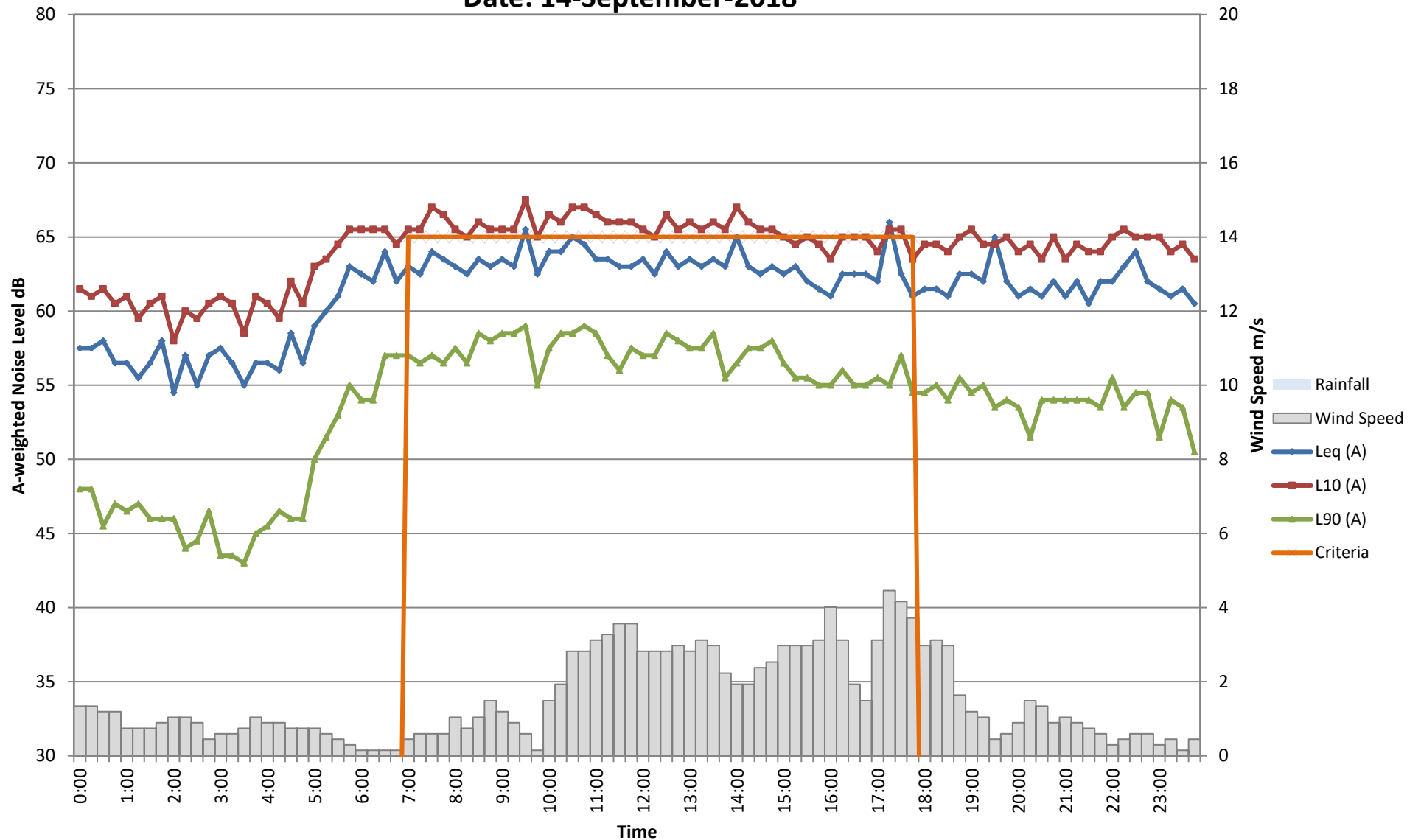
Noise Level Measurements
Monitor Location: 13 Arundel Street, Glebe
Date: 12-September-2018



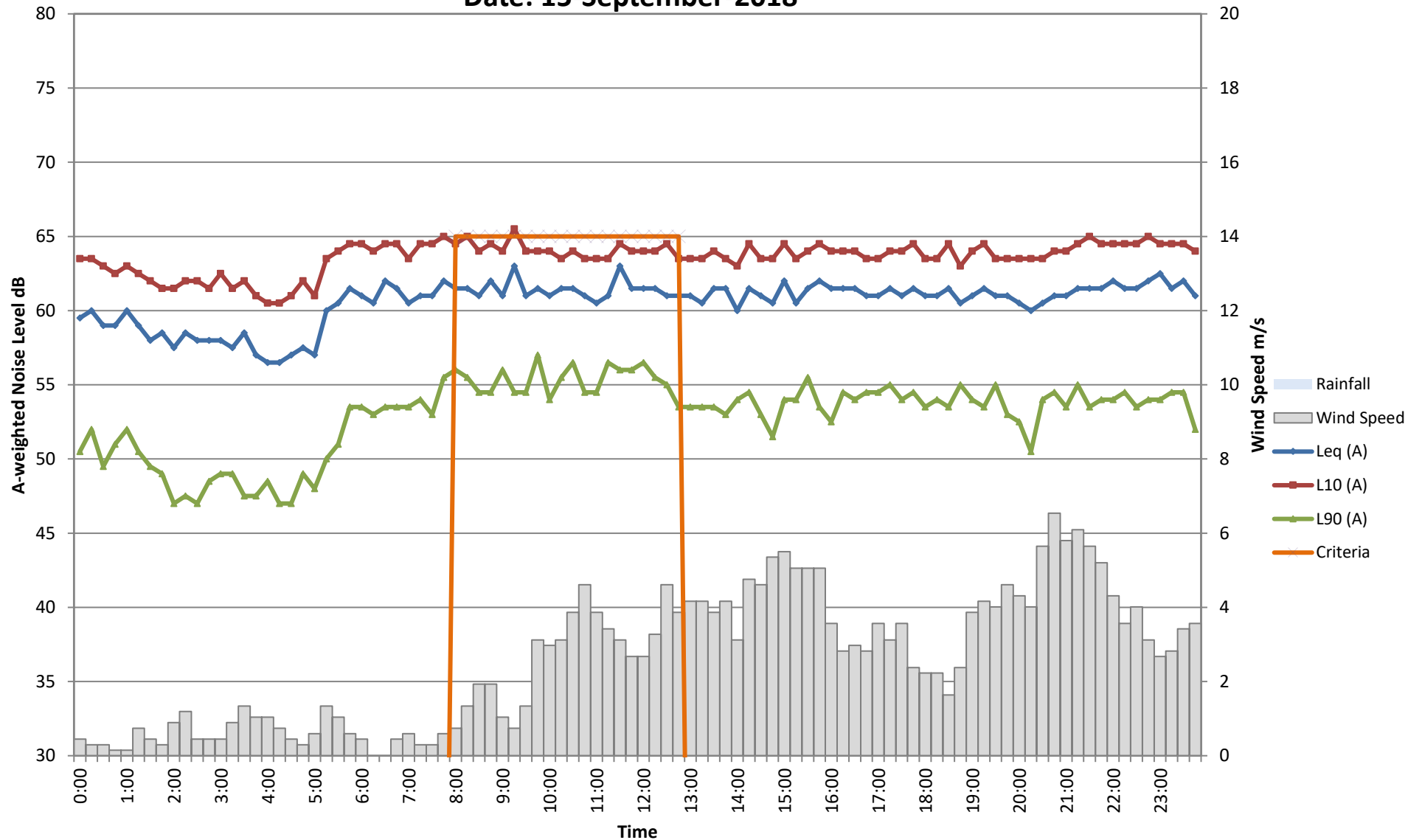
Noise Level Measurements
Monitor Location: 13 Arundel Street, Glebe
Date: 13-September-2018



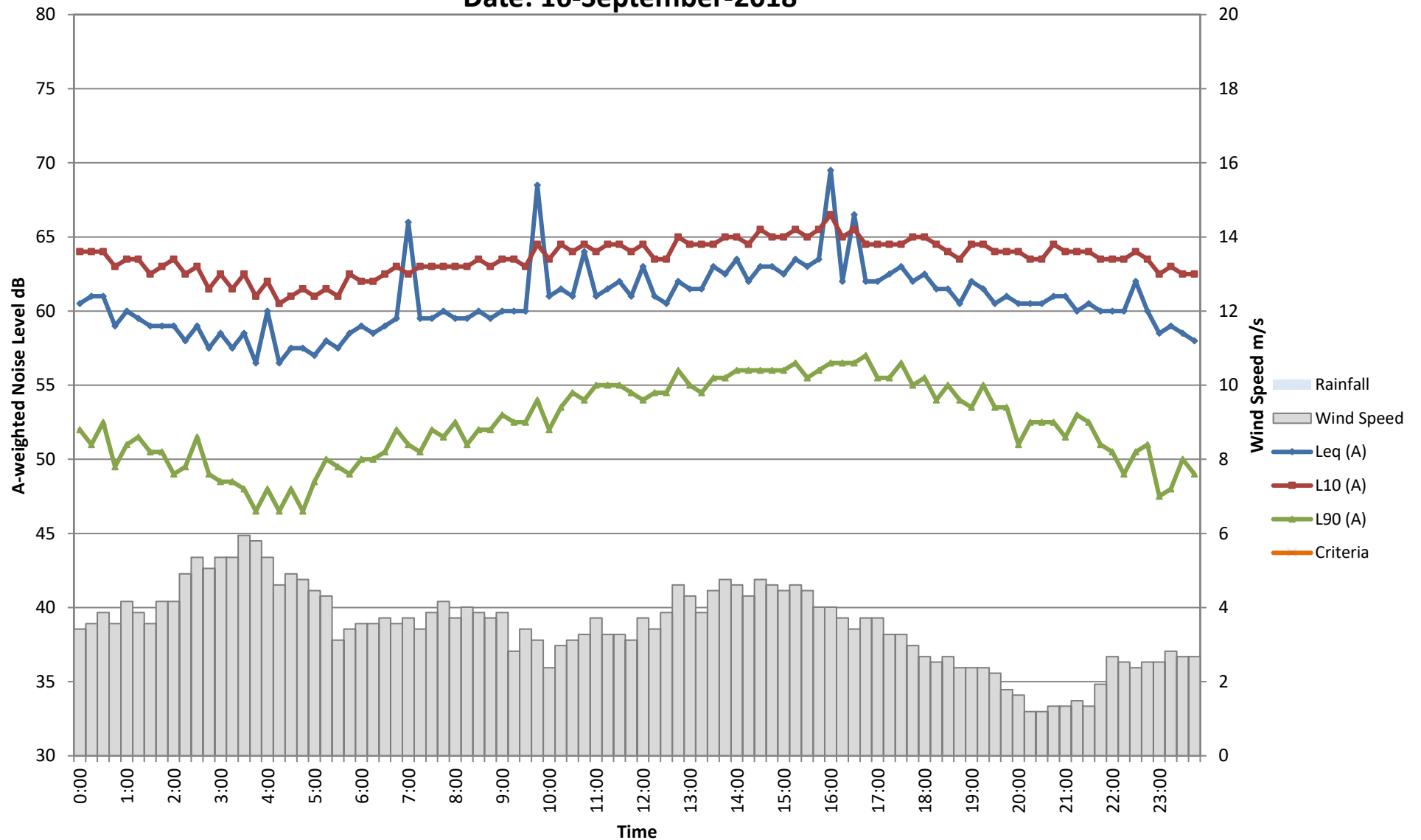
Noise Level Measurements
Monitor Location: 13 Arundel Street, Glebe
Date: 14-September-2018



Noise Level Measurements
Monitor Location: 13 Arundel Street, Glebe
Date: 15-September-2018



Noise Level Measurements
Monitor Location: 13 Arundel Street, Glebe
Date: 16-September-2018



6 Appendix 3: ADE Environmental Report



ADE Consulting Group Pty Ltd
6/7 Millennium Ct
Silverwater NSW, 2128

21st February 2019

Harry Moate
Cadet
FDC Construction (NSW) Pty Ltd
harrym@fdcbuilding.com.au
0409 072 545

Re: Turbidity Assessment – Lake Northam, Camperdown NSW

Ref: STC-1517-15714.LTR1.v2 final

Dear Mr. Moate,

Background

ADE Consulting Group Pty Ltd (ADE) was commissioned by FDC Construction Pty Ltd (the Client) to undertake Turbidity field measurements within Lake Northam, Camperdown NSW. The aim of the investigation was to understand the existing levels of turbidity and to provide a baseline for any future dewatering activities (refer to *Appendix I – Aerial Photograph*).

The turbidity measurements of Lake Northam were assessed against the guidelines outlined for south east Australian lakes and reservoirs within the Australian and New Zealand Environment and Conservation Council, and the Agriculture and Resource Management Council of Australia and New Zealand document: *Paper No. 4 - Australian and New Zealand Guidelines for Fresh and Marine Water Quality – Volume 1 – The Guidelines* (ANZECC and ARMCANZ 2000).

Field Works

The turbidity assessment of Lake Northam was undertaken by an Environmental Consultant representing ADE on the 18th of February 2019. The turbidity was assessed with the use of a 'Turbidity meter WP-88' (refer to *Appendix III – Calibration Certificate* for a copy of the calibration and service report).

The turbidity measurement locations were spread throughout Lake Northam to indicate the turbidity of the presumed stormwater inlet area into lake Northam from the Client's up-gradient construction site, as well as the turbidity levels throughout downstream locations of Lake Northam. The direction of water flow is presumed to flow easterly toward an outlet stormwater pipe identified adjacent 'Measurement Point 5' (refer to *Appendix I – Aerial Photograph*).

Results

A summary of the measured turbidity values is provided in **Table 1** on the following page.

‘Measurement Point 1’, ‘Measurement Point 2’ and ‘Measurement Point 3’ are noted to be turbidity measurement points representing the stormwater inflow into Lake Northam from the Client’s construction site.

Table 1. Turbidity Measurements Obtained from Lake Northam.

Measurement ID ²	Measurement Depth (m)	Turbidity (NTU)
Measurement Point 1	0.15	11.5
Measurement Point 2	0.15	2.7
Measurement Point 3	0.15	7.5
Measurement Point 4	0.15	9.0
Measurement Point 5	0.15	4.7
Measurement Point 6	0.15	4.0
Measurement Point 7	0.15	3.0
Measurement Point 8	0.15	4.0
Trigger Criteria for Further Consideration / Assessment¹		>20

Notes to Table 1

1 – Adopted site assessment criteria as per [ANZECC](#) and ARMCANZ (2000).

2 – For the location of measurement points, refer to *Appendix I – Aerial Photograph*.

The results indicate that the turbidity measured within Lake Northam was below the adopted guidelines for lakes and reservoirs in south east Australia as per ANZECC and ARMCANZ (2000). Previously discharged water from the Client’s up-gradient construction site does not appear to have produced a significant impact on lake water quality through excess turbidity and the turbidity measurements are within an acceptable level.

Conclusions

Based on the results of the site observations and analytical data, it is the opinion of ADE that:

- The turbidity measurements obtained from Lake Northam indicate there were no exceedances of the adopted criteria – as per ANZECC and ARMCANZ (2000) guidelines for south east Australia lakes and reservoirs; and
- The turbidity measurement data provides a baseline to compare any future discharges against.

If you have any questions regarding the above, please feel free to contact our office on (02) 8541 7214.

Regards,



Written By:

Joshua Panton
Environmental Consultant
Graduate Diploma of Environment



Reviewed By:

Santo Ragusa
Principal Scientist
Dr of Philosophy (App. Sci.)

APPENDIX I – AERIAL PHOTOGRAPH

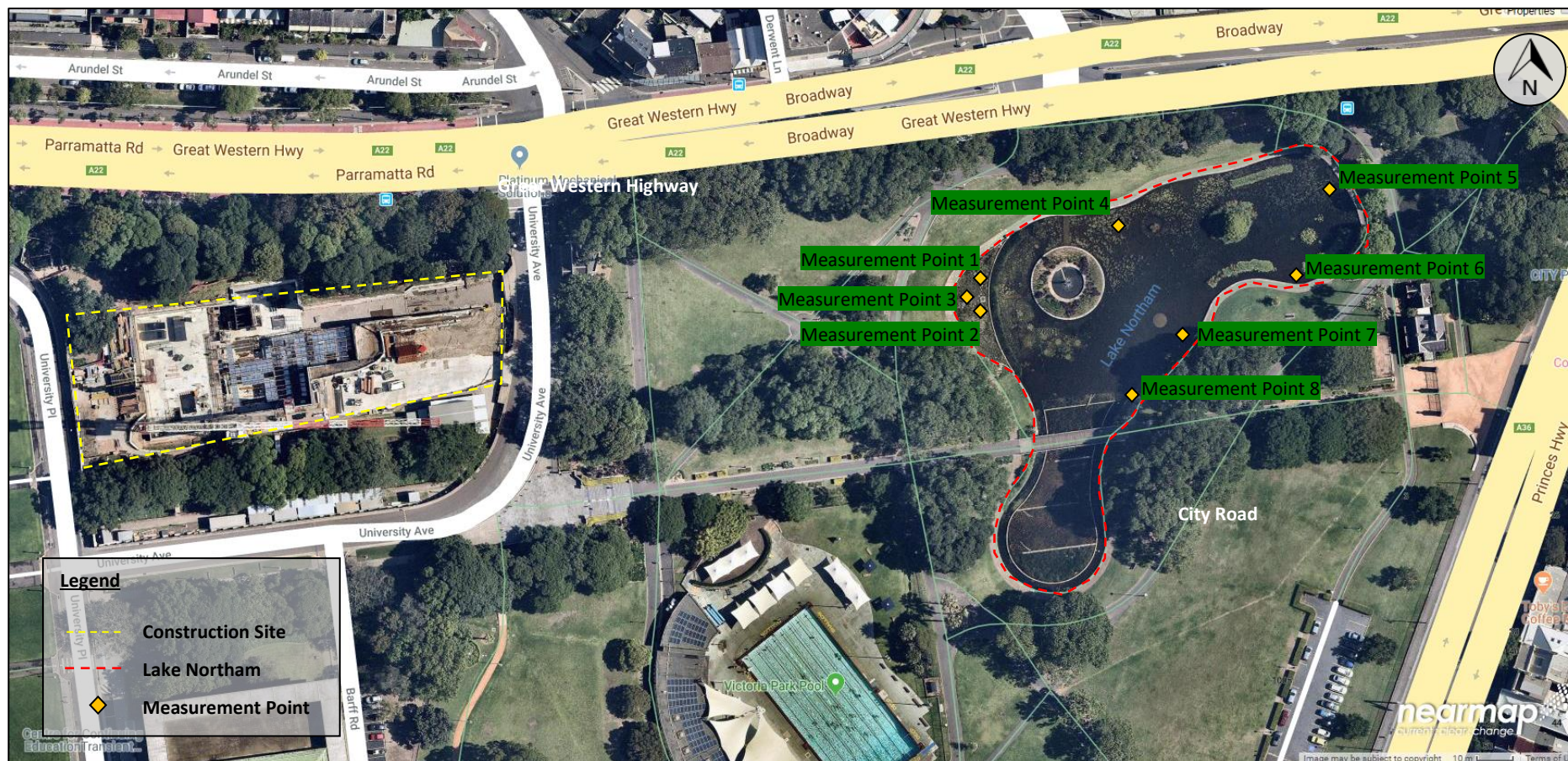
New South Wales Office:
ADE Consulting Group Pty Ltd
Unit 6 / 7 Millennium Court
Silverwater, NSW 2128

Victorian Office:
ADE Consulting Group Pty Ltd
Unit 1 / 95 Salmon Street
Port Melbourne, VIC 3207

Telephone:
NSW: (02) 8541 7214
VIC: 1300 796 922

Internet:
site: <http://ade.group>
e-mail: info@ade.group

ABN:
14 617 358 808



Aerial Photograph 1. Illustration of the construction site and Lake Northam, with approximate turbidity measurement locations within Lake Northam (photograph adapted from <http://maps.au.nearmap.com/>, dated 29.12.2019).

New South Wales Office:
ADE Consulting Group Pty Ltd
Unit 6 / 7 Millennium Court
Silverwater, NSW 2128

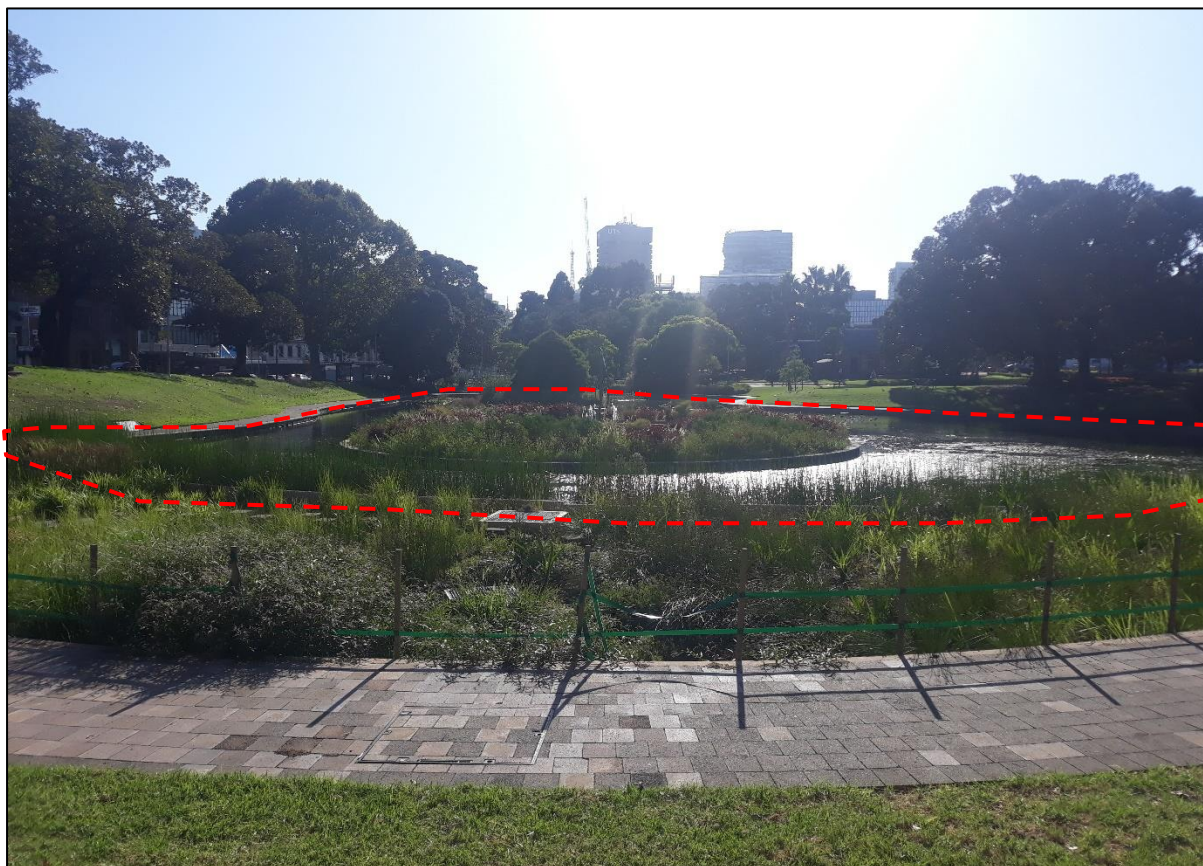
Victorian Office:
ADE Consulting Group Pty Ltd
Unit 1 / 95 Salmon Street
Port Melbourne, VIC 3207

Telephone:
NSW: (02) 8541 7214
VIC: 1300 796 922

Internet:
site: <http://ade.group>
e-mail: info@ade.group

ABN:
14 617 358 808

APPENDIX II – PHOTOGRAPHS



Photograph 1. Lake Northam (facing east). Date: 18.02.2019.



Photograph 2. Presumed area containing stormwater discharge inlet pipe connecting upstream construction site to Lake Northam (facing south west). Date: 18.02.2019.

APPENDIX III – CALIBRATION CERTIFICATE

New South Wales Office:
ADE Consulting Group Pty Ltd
Unit 6 / 7 Millennium Court
Silverwater, NSW 2128

Victorian Office:
ADE Consulting Group Pty Ltd
Unit 1 / 95 Salmon Street
Port Melbourne, VIC 3207

Telephone:
NSW: (02) 8541 7214
VIC: 1300 796 922

Internet:
site: <http://ade.group>
e-mail: info@ade.group

ABN:
14 617 358 808

Calibration & Service Report Water Quality Meter

Company: Active Environmental Solutions Hire
Address: Unit 16, 191 Parramatta Road
AUBURN NSW 2144
Phone: 02 9716 5966 | Fax: 02 9716 5988
Email: hire@aesolutions.com.au

Manufacturer: TPS
Instrument/Model: Turbidity meter WP-88

Serial #: T501960
Cable Length: 1 M

Client Company:
Client Name:

Client Email:
Client Phone:

Item	Test	Pass	Comments			
Battery	Charged	✓				
	Battery Saver	✓	Automatically turns off after 5 minutes if not used			
Connections	Condition	✓	New –Mint Condition			
Cable	Condition	✓	Clean, no tears			
Display	Operation	✓				
Firmware	Version	✓	V1.2			
Keypad	Operational	✓				
Display	Screen	✓				
Unit	Condition, seals and O-rings	✓				
Monitor housing	Condition	✓				
Turbidity						
Condition		✓	Good, clean			
Turbidity Probe S/N: 503467		✓				
Black cover		✓				
Tested and Calibrated to the Manufacturers Specification		✓				
Parameter	Standards	Reference	Calibration Point	Before	After	Units
Zero Turbidity	Deionised Water	W-5430	0.0	-0.1	0.0	NTU
Low Turbidity	90 NTU	10289 Oct'20	90	93.9	90.0	NTU
High Turbidity	900 NTU	10258 Nov'20	900	902.0	900.0	NTU

Calibrated By: Milenko Sisic

Calibration Date: 16th November 2018

Calibration Due: 16th May 2019

6 Appendix 4: CIS Endorsed REF



Review of Environmental Factors: Minor Works

PROJECT TITLE: MINOR EXTERNAL ALTERATIONS TO THE CHAU CHAK WING MUSEUM, UNIVERSITY OF SYDNEY, CAMPERDOWN CAMPUS

DESCRIPTION OF PROPOSED ACTIVITY

This Review of Environmental Factors (REF) proposes minor external building alterations to the Chau Chak Wing Museum (CCWM) approved under State Significant Development (SSD) Application 7894.

The proposed activity is confined to the north and south elevations, horizontal rooftop louvres and the central roof skylight of the CCWM.

Specifically, the activity includes:

- Changes to the horizontal slot windows on the north and south elevations to allow for continuous glazing;
- A reduction in the size of the central roof skylight;
- Deletion of the horizontal rooftop louvres over the plant in the north-west corner of the building; and
- Introduction of horizontal construction joints across north and south elevations.

A detailed description of the proposed activity is provided in **Section 1.1**.

LOCATION (commonly known street address/suburb): Chau Chak Wing Museum, The University of Sydney, Camperdown/Darlington Campus.

LOT: Part Lot 1

SECTION:

DP: 1171804

LOCAL GOVERNMENT AREA: City of Sydney

LAND USE ZONE: SP2 Infrastructure (Educational Establishment) under the Sydney Local Environmental Plan 2012.

SCOPE OF WORKS:

Identify all relevant works with a ✓

New construction works

Alterations and/or additions

Demolition works

Installation of new services and /or utilities (and/ or re-alignment)

New stormwater and/or flood mitigation works

Minor (necessary) earthworks ancillary to permitted activity

Tree removal or pruning (necessary and ancillary to the permitted activity).

Environmental Management Works

✓

SITE INSPECTION UNDERTAKEN ON: N/A



PROJECT TITLE: MINOR EXTERNAL ALTERATIONS TO THE CHAU CHAK WING MUSEUM, UNIVERSITY OF SYDNEY, CAMPERDOWN CAMPUS

INFORMATION RELIED UPON

This REF has been prepared by Ethos Urban in accordance with the following plans and supporting information:

- Revised Architectural Drawings prepared by Johnson Pilton Walker (at **Appendix 1**);
- Photomontage and Design Statement prepared by Johnson Pilton Walker (at **Appendix 2**);
- Architect Endorsement Statement prepared by Johnson Pilton Walker (at **Appendix 3**);
- Statement of Heritage Impact prepared by Ian Kelly (at **Appendix 4**); and
- A copy of the Conditions of Consent for SSD 7894 (at **Appendix 5**).

Note: This REF Minor Work short-form Assessment Report is based upon the requirements contained within the applicable legislation. The legislative requirements should be consulted if any questions or discrepancies arise.



Foreword and Certification

FOREWORD

This Review of Environmental Factors (REF) has been prepared by Ethos Urban for the University of Sydney.



The purpose of this REF is to assess the potential environmental impacts of an activity prescribed by either State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017 or State Environmental Planning Policy (Infrastructure) 2007 as "development without consent" on land vested in the University under Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The REF has been prepared in accordance with the relevant provisions of the EP&A Act, the *Environmental Planning and Assessment Regulation 2000*, State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017 (the ESEPP), State Environmental Planning Policy (Infrastructure) 2007 (the ISEPP), and other Federal and State legislation including the *Environment Protection and Biodiversity Conservation Act 1999*.

After the consideration of key environmental aspects and any specialist studies completed; as well as the information presented in this REF, it is concluded that by adopting the mitigation measures identified in this assessment it is unlikely that there would be any significant environmental impacts associated with the proposal.

CERTIFICATION

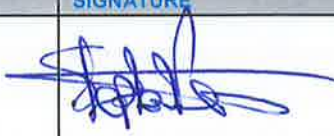


This REF provides a true and fair review of the proposal in relation to its potential effects on the environment. It addresses to the fullest extent possible, all matters affecting or likely to affect the environment as a result of the proposal. The information contained in this REF is neither false nor misleading.

PREPARED BY	QUALIFICATION AND POSITION	SIGNATURE	DATE
Arcangelo Antoniazzi	Urban Planner Plan(Dist), MUrbMgt&Plan		11/12/2018
REVIEWED BY	QUALIFICATION AND POSITION	SIGNATURE	DATE
Kate Tudehope	Associate Director BPlan(Hons) MPIA		11/12/2018

This REF has been examined and considered by those duly appointed and authorised persons and has been accepted on behalf of the University of Sydney, as the determining authority, as having satisfied those relevant objects of the EP&A Act and the matters prescribed by Sections 5.7 and 5.8 of the EP&A Act.



The proposed activity can proceed, subject to the implementation of the specified Mitigation Measures stated in **Section 8**.

CIS REVIEWER	POSITION	SIGNATURE	DATE
Stephane Kerr	Town Planner – Campus Infrastructure Services		12.12.2018
Juliette Churchill	Divisional Manager of Design, Engineering, Planning and Sustainability		12/12/18
AUTHORISED UoS DELEGATE*	POSITION	SIGNATURE	DATE
Greg Robinson	Director, Campus Infrastructure Services (CIS)		13.12.18

* Authorised UoS Delegate for projects with a cost of works \$2 million or under (the CIV for the proposed activity is \$460,000).

1 Proposed Activity

1.1 DESCRIPTION OF THE PROPOSED ACTIVITY

As detailed above, the proposed activity comprises minor works to the north and south elevations, horizontal rooftop louvres and the central roof skylight of the CCWM. The minor works are explained below and are illustrated in comparison to that approved under SSD 7894.

Changes to the horizontal slot windows on the north and south elevations

The approved north and south façade of the CCWM comprised a series of horizontal slot windows separated by textured concrete. Under the proposed works, the textured concrete is proposed to be deleted and replaced with glazing. This will form a continuous strip of glazing across each façade. **Figures 1 and 2** show the approved and proposed southern elevation, respectively.

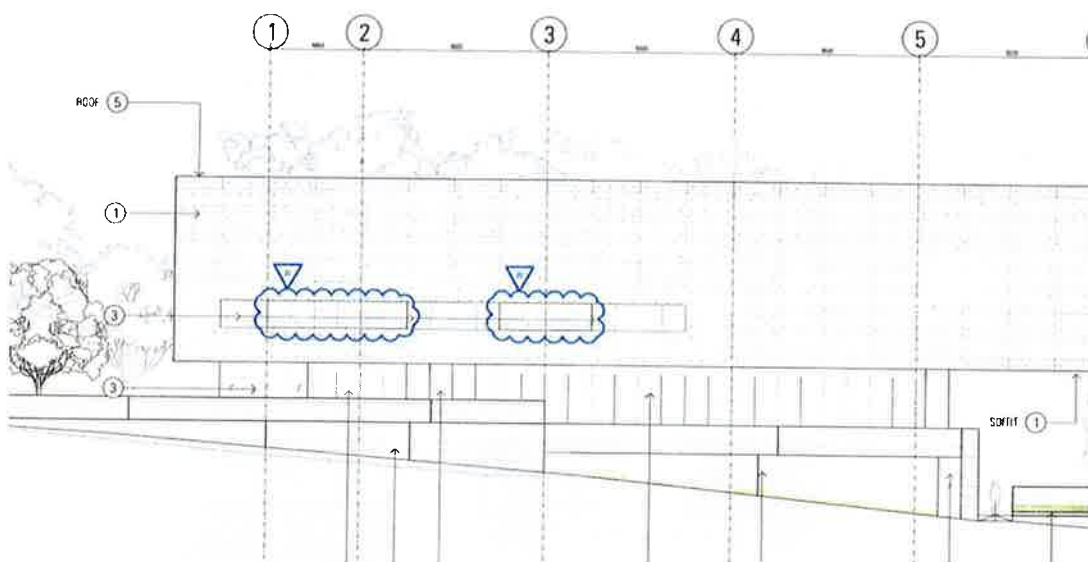


FIGURE 1 – SOUTH ELEVATION AS APPROVED UNDER SSD 7894

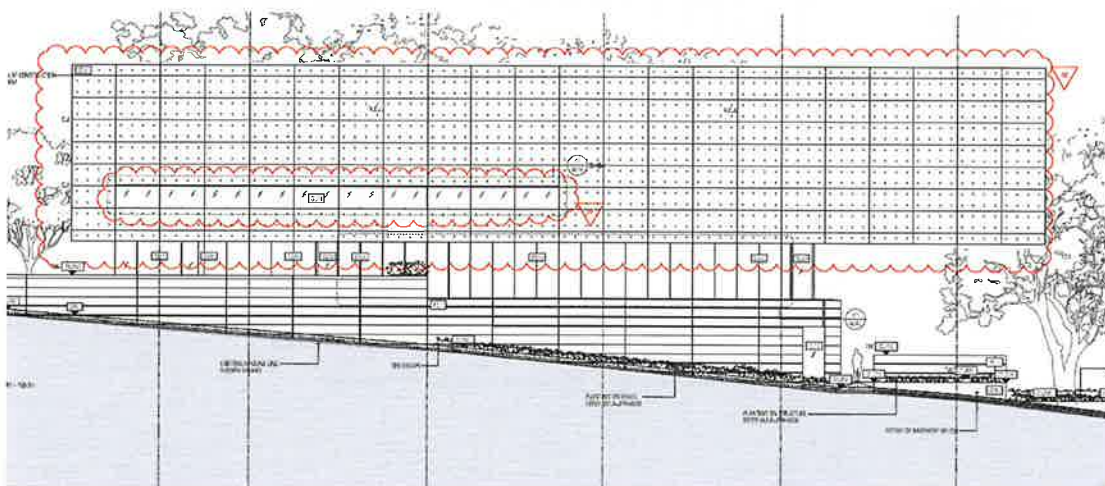


FIGURE 2 – CONTINUOUS GLAZING PROPOSED ALONG THE SOUTHERN FAÇADE AS PART OF THIS REF



Reduction in the size of the central roof skylight

The approved roof skylight is proposed to be reduced in size to provide a more controlled internal environment for the Museum. The size reduction is demonstrated in **Figure 3** and **Figure 4**.

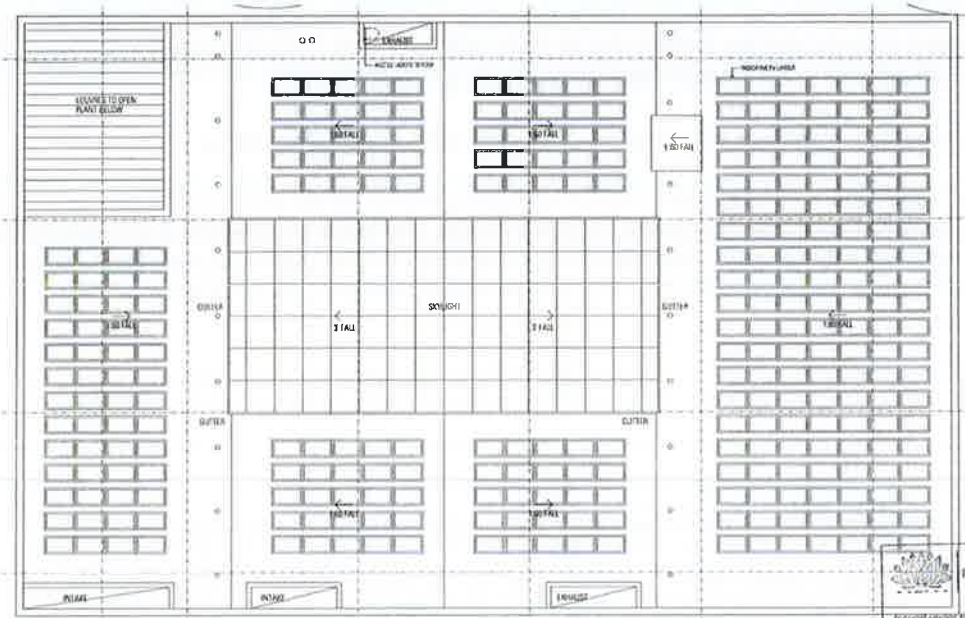


FIGURE 3 – ROOF PLAN AS APPROVED UNDER SSD 7894



FIGURE 4 – ROOF PLAN AS PROPOSED WITH REDUCED ROOF SKYLIGHT AS PART OF THIS REF



Deletion of horizontal rooftop louvres within north west corner of the building

The approved CCWM incorporates horizontal rooftop louvres which cover the rooftop plant in the north-west corner of the building. These louvres have no functional or aesthetic purpose, and are proposed to be removed to enable improved access for maintenance of the cooling towers and removal of any redundant plant (refer to **Figure 5** and **Figure 6**).

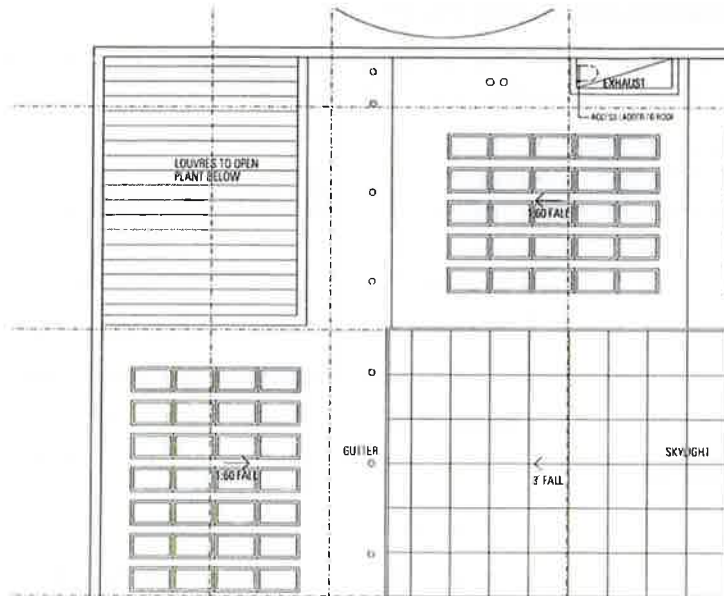


FIGURE 5 – ROOF PLAN (NORTH WEST CORNER) AS APPROVED UNDER SSD 7894

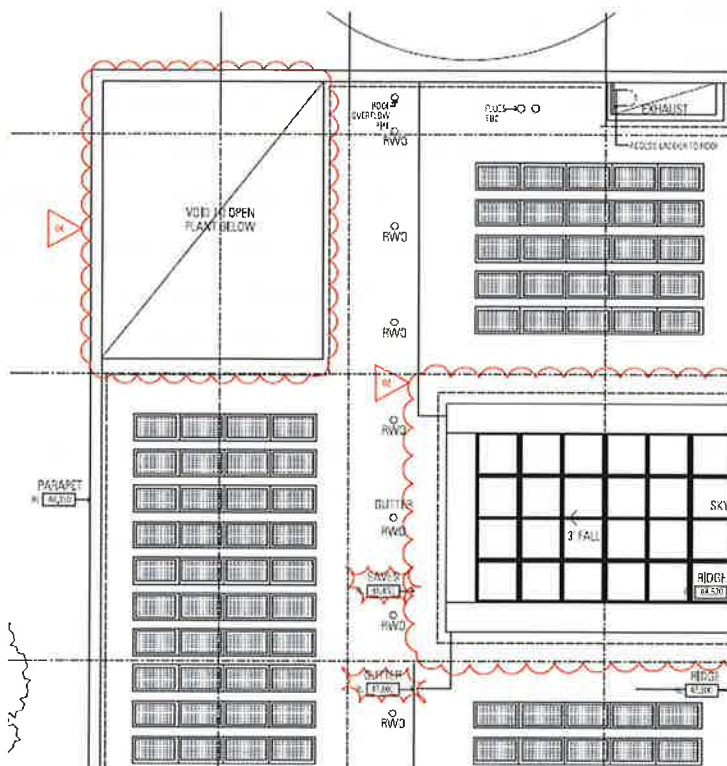


FIGURE 6 – ROOF PLAN (NORTH WEST CORNER) WITH THE REMOVAL OF HORIZONTAL ROOFTOP LOUVRES AS PROPOSED AS PART OF THIS REF



Introduction of horizontal construction joints across the north and south elevations

A series of construction joints have been introduced to the north and south elevations. This reflects ongoing design development and improved buildability since approval of the CCWM. The joints are a subtle addition to the facades and do not result in any significant material changes.

1.2 ACTIVITY PRE-REQUISITES UNDER THE ESEPP

This REF has been prepared to support minor works that, in relation to proposed activities under the ESEPP (as identified in Table 2 below), meet the following pre-requisite criteria:

TABLE 1 – PRE-REQUISITE CRITERIA UNDER ESEPP

CRITERIA	CHECK AS CORRECT (✓/✗)
Carried out by/on behalf of a public authority on land within a prescribed zone as applicable in Table 2 below.	✓ The proposed activity is being carried out on behalf of the University of Sydney (a public authority). The site is zoned SP2 Infrastructure (Educational Establishment), identified as a prescribed zone under Clause 43(b) of the ESEPP.
Does not require an alteration of transport or traffic arrangements.	✓ The proposed activity relates to the façade and roof of the CCWM. The activity will not alter the existing traffic or transport arrangements for the CCWM or broader University.
Does not cause the contravention of any existing condition of the most recent development consent that applies to the University relating to hours of operation, noise, car parking, vehicular movement, traffic generation, loading waste management, landscaping or student or staff numbers.	✓ The proposed activity will not cause any contravention or inconsistency with the conditions of consent for the CCWM. Given the nature of the proposed alterations, it would not contravene any existing conditions of other recent consents on the campus in relation to noise, car parking, vehicular movement, traffic generation, loading waste management, landscaping or student or staff numbers.
Complies with any development standard that sets a maximum floor space ratio and gross floor area.	✓ The University does not have a specified maximum floor space ratio control under the <i>Sydney Local Environmental Plan 2012</i> (SLEP 2012). The activity proposed under this REF does not alter the floor space (7,740m ²) approved for the CCWM under SSD 7894.
In relation to the development involving alteration or addition (Clause 46(1)(b) of the ESPP) does not extend the gross floor area of the existing building by more than 50% and does not result in the building having a gross floor area of more than 2,000 sqm.	✓ The proposed activity does not alter the approved gross floor area of the CCWM.



CRITERIA	CHECK AS CORRECT (✓/✗)
In relation to development on sites less than 2,000 sqm does not result in the floor space ratio for all buildings on the site exceeding the floor space ratio for all buildings on the site of 1:1.	N/A The site area is greater than 2,000 sqm.
In relation to development on sites more than 2,000 sqm does not extend the existing gross floor area for all buildings on the site by more than 2,000sqm.	✓ The proposed activity relates to minor modification works to the approved north and south elevations, horizontal rooftop louvres and skylight of the CCWM. The activity does not extend the approved gross floor area of the CCWM.

1.3 ACTIVITY DESCRIPTION UNDER EITHER ESEPP OR ISEPP

Under the provisions of either ESEPP or ISEPP 2007, the following activity is to be undertaken:

TABLE 2 – IDENTIFIED ACTIVITY AND LEGAL MECHANISM

DIVISION AND CLAUSE WITHIN ESEPP OR ISEPP	DESCRIPTION OF WORKS	ACTIVITY PROPOSED (✓/✗)	LOCATED WITHIN A PRESCRIBED ZONE (ZONE DESCRIPTION, ✓/✗)
Part 5 – Clause 46(1)(a) ESEPP	<p>University-Construction; construction, operation or maintenance, more than 5 metres from any property boundary with land in a residential zone and more than 1 metre from any property boundary with land in any other zone, of:</p> <ul style="list-style-type: none"> ▪ a library or an administration building that is not more than 1 storey high, or ▪ a teaching facility (including a lecture theatre), laboratory, trade facility or training facility that is not more than 1 storey high, or ▪ an environmental facility, including a greenhouse or glass house, or ▪ an information and education facility, or ▪ a storage or maintenance facility, or ▪ a kiosk, cafeteria or bookshop for students and staff that is not more than 1 storey high, or ▪ a car park that is not more than 1 storey high, or ▪ an outdoor learning or play area and associated awnings or canopies 	✗	



DIVISION AND CLAUSE WITHIN ESEPP OR ISEPP	DESCRIPTION OF WORKS	ACTIVITY PROPOSED (✓/✗)	LOCATED WITHIN A PRESCRIBED ZONE (ZONE DESCRIPTION, ✓/✗)
Part 5 – Clause 46(1)(b) ESEPP	University-Minor alterations or additions	✓	✓
Part 5 – Clause 46(1)(c) ESEPP	University-Restoration, replacement or repair	✗	-
Part 5 – Clause 46(1)(d) ESEPP	University-Demolition	✗	-
Part 3 - Div. 4 cl. 36 ISEPP	Electricity generating works or solar energy systems	✗	-
Part 3 - Div. 5, cl. 41 ISEPP	Electricity transmission or distribution	✗	-
Part 3 - Div. 7 cl. 50 ISEPP	Flood Mitigation works	✗	-
Part 3 - Div. 9, cl. 53 ISEPP	Gas transmission, or distribution and pipelines	✗	-
Part 3 - Div.14, cl 77 ISEPP	Public administration buildings and Crown buildings	✗	-
Part 3 - Div. 16, cl .92 ISEPP	Research and/or monitoring station	✗	-
Part 3 - Div. 17, cl. 94 ISEPP	Road infrastructure facilities	✗	-
Part 3 - Div. 19, cl. 106 ISEPP	Sewerage systems	✗	-
Part 3 - Div. 19, cl.109 ISEPP	Soil Conservation works	✗	-
Part 3 - Div. 20, cl.111 ISEPP	Stormwater management systems	✗	-
Part 3 - Div. 21, cl 114 ISEPP	Telco and other communication facilities	✗	-
Part 3 - Div. 24, cl.125 ISEPP	Water supply systems	✗	-



2 Site and Locality

The site upon which the proposed activity is located, and an enlarged area of the specific area of the site (relevant to immediately adjoining buildings and roads and vegetation), is identified in the map and aerial photograph at **Figures 7 and 8**.

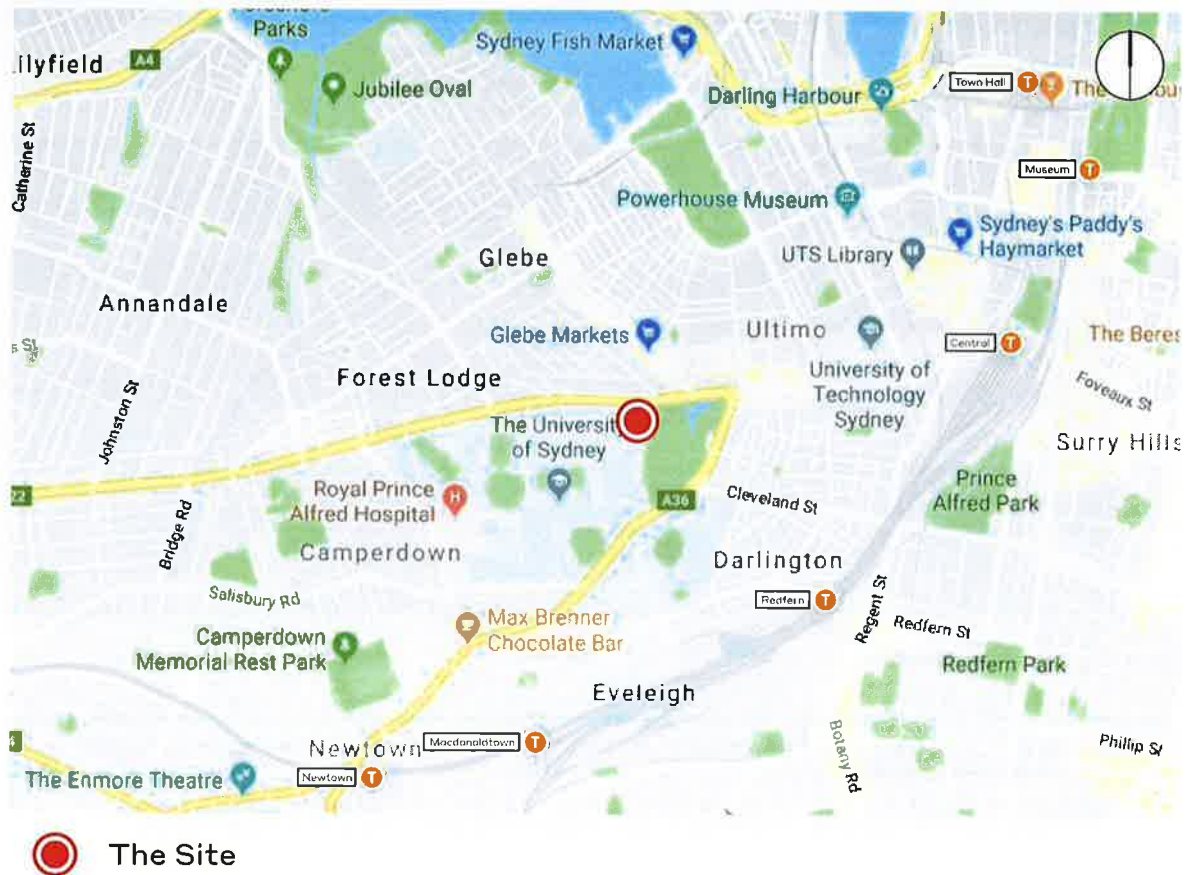


FIGURE 7 – SITE LOCALITY



 The Site

FIGURE 8 – AREA OF PROPOSED ACTIVITY (WORKS ARE CURRENTLY UNDERWAY FOR THE CONSTRUCTION OF THE CCWM IN ACCORDANCE WITH SSD 7894).

The site's key site features, in relation to the proposed activity, are summarised below:

TABLE 3 – KEY SITE FEATURES

SITE FEATURES	YES/NO ²	DETAILS
Does the proposed activity involve the removal or pruning of trees?	NO	The proposed activity does not involve the removal or pruning of trees.
Does the proposal activity apply to a heritage item (local, state or Section 170)	YES	The University of Sydney, University Colleges and Victoria Park is identified as Stage heritage item under the State Heritage register (Item no. 01974). It is noted however that the proposed activity can be undertaken as a Site-specific Exemption under Section 57(2) of the <i>Heritage Act 1977</i> as the activity is in accordance with a current and valid development consent (SSD 7894) which was in force at the date of gazettal for the listing of The University of Sydney, University Colleges and Victoria Park on the State Heritage Register.
Is the immediate area where the proposed activity is being carried out located within a heritage	YES	The University of Sydney Campus is identified as a local heritage conservation area (item no. C5) under SLEP 2012. The proposed activity relates only to minor



SITE FEATURES	YES/NO ²	DETAILS
conservation area?		alterations to the approved CCWM. The proposed activity is minor in nature and will not reduce the heritage significance of the conservation area, including the associated fabric, views and setting of the conservation area.
Is the site burdened by easements or rights of way that are likely to affect the activity?	NO	The site is not burdened by easements which would affect the proposed activity.
Is the land identified as Bushfire Prone?	NO	The land is not identified as being bushfire prone.
Is the land flood liable land?	NO	The site is located within the Blackwattle Bay drainage catchment. The <i>University of Sydney Flood Mitigation Master Plan – Final Report</i> (October 2015) indicates that the site is not flood affected in the 100 year average recurrence interval storm design event. It is noted however that University Avenue, located east of the site, experiences peak flood depths up to 0.5m in the 100 year storm event. The drainage design approved under SSD 7894 for the CCWM addresses this flooding constraint. Notwithstanding, the proposed activity is minor in nature and does not include works which would alter the flooding and drainage of the site.
Is the area of the site (where the proposed activity to occur) known to be contaminated or likely to be contaminated?	NO	The site of the CCWM was subject to a detailed contamination assessment under SSD 7894. Sampling and laboratory analysis did not identify any obvious indications of gross contamination. Notwithstanding, the proposed activity does not require any ground disturbances beyond what was approved under SSD 7894.
Are there any watercourses close to the site of the proposed activity (ephemeral or permanent)?	NO	There are no watercourses close to the site of the proposed activity.
Is the site or land located along the coast line or identified as a foreshore area?	NO	The site is not located on the coast and is not identified as a foreshore area.

²**NOTE:** If 'yes' to any of the above questions, it may be appropriate to seek the advice of a specialist consultant or University advisor to provide the relevant assessment of this issue as part of this REF, or whether it would trigger the preparation of an Environmental Impact Statement.



3 Notification

The general and Division-specific notification consultation provisions of the relevant SEPPs have been checked within:

- Clauses 10-14 of the ESEPP and within Part 5 of the ESEPP
- Clauses 13-17 of the ISEPP and within each relevant Division of the ISEPP

NOTE: If any of the following statements are incorrect (i.e. marked as 'x'), notification may be required, and consequently, more detailed assessment will be likely.

TABLE 4 – NOTIFICATION TRIGGERS

POTENTIAL CONSULTATION TRIGGER	CHECK AS CORRECT (✓/✗)	MATERIAL SUPPORTING THIS POSITION (APPEND IF REQUIRED)
GENERAL TRIGGERS – COMMENT		
The activity will not materially affect a local or state heritage item, or a heritage conservation area.	✓	The activity applies to the CCWM, located within The University of Sydney, University Colleges and Victoria Park State heritage item. Notwithstanding, The CCWM, as approved, was designed to minimise adverse impacts, key historic views and vistas on nearby local and state heritage items, as well as the broader University of Sydney Campus conservation area (item no. C5). The proposed activity is minor in nature and will not materially affect the CCWM to a point where the building begins to adversely impact the state heritage significance of the University of Sydney, University Colleges and Victoria Park (refer to Statement of Heritage Impact at Appendix 4).
The activity will not have a substantial impact on Council's services and infrastructure (sewer, water, and stormwater or road network).	✓	The proposed activity is minor in nature and will not impact Council's services and infrastructure.
The activity will not significantly affect access to or through Council owned land.	✓	-
The activity is not occurring on flood liable land and (if so) will not materially change flood patterns.	✓	-
The activity does not involve a "specified activity" requiring consultation with a "specified authority" by virtue of any of the following:	✓	-



POTENTIAL CONSULTATION TRIGGER	CHECK AS CORRECT (✓/✗)	MATERIAL SUPPORTING THIS POSITION (APPEND IF REQUIRED)
GENERAL TRIGGERS – COMMENT		
▪ The activity is not adjacent to land reserved under the National Parks and Wildlife Act 1974.	✓	-
▪ The activity is not adjacent to a Marine Park declared under the Marine Parks Act 1997.	✓	-
▪ The activity is not adjacent to an aquatic reserve declared under the Fisheries Management Act.	✓	-
▪ The activity is not in a foreshore area within the meaning of the Sydney Harbour Foreshore Authority Act 1988.	✓	-
▪ The activity does not compromise a fixed or floating structure in or over navigable waters.	✓	-
▪ The activity is not Bushfire Prone land as defined by the Environmental Planning and Assessment Act.	✓	-
DIVISION-SPECIFIC TRIGGERS		
The activity does not involve the construction of buildings (refer to Clause 46(1)(a) of the ESEPP).	✓	-
The activity is not for the purpose of a new or existing sub-station (refer to Clause 42(1)(b) of the ISEPP).	✓	-

4 Legislative and Planning Context

4.1 ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979 (EP&A ACT) AND ENVIRONMENTAL PLANNING AND ASSESSMENT REGULATION 2000 (REGULATION)

This REF considers the requirements of Section 5.5 of the EP&A Act, as well as Clause 228 of the Regulation.

For the purpose of attaining the objectives of the EP&A Act relating to the protection and enhancement of the environment, a determining authority in its consideration of an activity shall, notwithstanding any other provisions of the Act or the provisions of any other Act or of any instrument made under the EP&A Act or any other Act, examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of that activity.

This REF report addresses the provisions of Section 5.5 of the EP&A Act. The required impact assessment under Clause 228 of the Regulations is set out in Section 5.1 of this REF.

4.2 COMMONWEALTH ENVIRONMENTAL PROTECTION AND BIODIVERSITY CONSERVATION ACT 1999

The provisions of the *Environment Protection and Biodiversity Conservation Act 1999* do not affect the proposed works as it is not development that takes place on or affects Commonwealth land or waters. Further, it is not development carried out by Commonwealth agencies, nor is the proposed development a matter considered to be of national environmental significance.

NOTE: If any of the following statements are incorrect (i.e. marked as 'x'), a more detailed assessment should be undertaken in relation to this issue to determine whether the preparation of this REF is sufficient, or whether or not an Environmental Impact Statement is required.

TABLE 5 – EPBC CHECKLIST

FACTOR	CHECK AS CORRECT (✓/✗)
The activity will not have any significant impact on a declared World Heritage Property?	✓
The activity will not have any significant impact on a National Heritage place?	✓
The activity will not have any significant impact on a declared Ramsar wetland?	✓
The activity will not have any significant impact on Commonwealth listed threatened species or endangered community?	✓
The activity does not involve nuclear actions?	✓
The activity will not have any significant impact on Commonwealth marine areas?	✓
The activity will not have any significant impact on Commonwealth land?	✓



4.3 OTHER NSW LEGISLATION

The following table lists any additional legislation that is required to be considered if it is applicable to the proposed activity:

TABLE 6 – OTHER POSSIBLE LEGISLATIVE REQUIREMENTS

LEGISLATION	COMMENT	CHECK AS CORRECT(✓/✗)
<i>Rural Fires Act 1997</i>	The <i>Rural Fires Act 1997</i> is not relevant, as the area of the proposed works on the site are not identified on the applicable Bushfire Prone Land Map.	✓
<i>Biodiversity Conservation Management Act 2016</i>	The <i>Biodiversity Conservation Management Act 2016</i> is not relevant as the area of the site does not contain native vegetation and does not propose to clear native vegetation which would adversely impact threatened species, ecological communities and their habitat.	✓
<i>Water Management Act 2000</i>	The <i>Water Management Act 2000</i> is not relevant, as the proposed works are not located within 40 metres of a watercourse.	✓
<i>Contaminated Land Management Act 1997</i>	The <i>Contaminated Land Management Act 1997</i> is not relevant as the site is not listed on the register of contaminated sites within the <i>Contaminated Land Management Act 1997</i> .	✓
<i>Heritage Act 1977</i>	<p>The <i>Heritage Act 1977</i> is relevant as the proposed works are associated with the CCWM, located within The University of Sydney, University Colleges and Victoria Park Stage heritage item (item no. 01974).</p> <p>The proposed activity can be undertaken as a Site-specific Exemption under Section 57(2) of the <i>Heritage Act 1977</i> as the activity is in accordance with a current and valid development consent (SSD 7894) which was in force at the date of gazettal for the listing of The University of Sydney, University Colleges and Victoria Park on the State Heritage Register. Also, the proposed activity does not adversely impact any building of Exceptional or High Significance.</p>	✓
<i>Roads Act 1993</i>	The <i>Roads Act 1993</i> is not relevant as the proposed works do not relate to a public road, nor will the works involve the pumping of water onto a public road or involve the connection of a road to a classified road.	✓
Other Acts as Required	There are no other Acts that are required to be addressed.	✓
SEPP 55	<i>State Environmental Planning Policy No 55 – Remediation of Land</i> is not relevant as there is no potential for the site to be contaminated, or it has been satisfied suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out.	✓
Other SEPPs as required	There are no other relevant SEPPs that are required to be addressed	✓

NOTE: In the event any other Act requires approval under that Act, such approval will be obtained at the relevant time.



5 Environmental Impact Assessment

5.1 ENVIRONMENTAL PLANNING AND ASSESSMENT REGULATION 2000 - ASSESSMENT CONSIDERATIONS

As part of its obligations under Section 5.5 of the EP&A Act, The University of Sydney is required to take into account, to the fullest extent possible, all matters likely to affect the environment. The determining authority is required by Clause 228 of the EP&A Regulations to give consideration to a number of factors, as listed in the table below.

Table 7 – SUMMARY OF ENVIRONMENTAL FACTORS REVIEWED IN RELATION TO THE ACTIVITY

RELEVANT CONSIDERATION	RESPONSE/ASSESSMENT INCLUDING REFERENCE TO APPENDED MATERIAL (IF REQUIRED)	IMPACT CHECK RELEVANT AS (✓)
(a) any environmental impact on a community <i>Prompt only: Does the proposal have any natural or man-made impact on the University campus community, or the broader residential or business community?</i>	The proposed activity is minor in nature and will not generate any natural or manmade impacts to the CCWM, or the broader University community.	-ve Nil ✓ +ve
(b) transformation of a locality <i>Prompt only: Does the proposal significantly change the nature of the locality?</i>	The proposed activity is minor in nature and will not significantly change the nature of the locality.	-ve Nil ✓ +ve
(c) any environmental impact on the ecosystem of the locality <i>Prompt only: Does the proposal impact on the ecosystem that is relevant to the immediate area? (i.e. the system between natural and man-made environment)</i>	The proposed activity will not result in any negative impact to the locality, or result in any environmental impacts on the local ecosystem.	-ve Nil ✓ +ve
(d) any reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality.	The proposed activity relates only to minor external building alterations to the CCWM. These modifications will not reduce the aesthetic, recreational, scientific or other environmental quality or value of the University locality.	-ve Nil ✓ +ve
(e) Any effect on locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific, or social significance or other special value for present or future generations.	The proposed activity will not threaten the aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific, or social significance on the surrounding University locality or the approved CCWM.	-ve Nil ✓ +ve
(f) Any impact on the habitat of protected fauna (within the meaning of the National Parks and Wildlife Act 1974)	The site of the CCWM has limited fauna habitat and does not contain protected fauna. The proposed activity will generate no impact to fauna.	-ve Nil ✓ +ve
(g) Any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air	The proposed activity will not endanger any species of animal plant or other form of life, whether living on land, in water or in the air.	-ve Nil ✓ +ve



<p>(h) Any long term impacts on the environment</p> <p><i>Prompt only: Does the natural of the proposal result in a long-term or permanent impact on the natural or man-made environment?</i></p>	<p>The proposed activity will not cause any long term or indirect impacts on the environment.</p>	<p>-ve</p> <p>Nil</p> <p>+ve</p>	<p></p> <p>✓</p> <p></p>
<p>(i) Any degradation of the quality of the environment</p> <p><i>Prompt only: Does the proposal reduce the quality of the natural environment?</i></p>	<p>The proposed activity involves minor alterations to the approved CCWM. Therefore, the proposed activity will not cause degradation of the quality of the natural environment.</p>	<p>-ve</p> <p>Nil</p> <p>+ve</p>	<p></p> <p>✓</p> <p></p>
<p>(j) Any risk of safety of the environment</p>	<p>The proposed activity will not risk the safety of the environment. Any impacts during construction will be managed in accordance with the conditions imposed under SSD 7894.</p>	<p>-ve</p> <p>Nil</p> <p>+ve</p>	<p></p> <p>✓</p> <p></p>
<p>(k) Any reduction in the range of beneficial uses of the environment</p>	<p>The proposed activity will not reduce the range of beneficial uses of the environment.</p>	<p>-ve</p> <p>Nil</p> <p>+ve</p>	<p></p> <p>✓</p> <p></p>
<p>(l) Any pollution of the environment</p>	<p>The proposed activity will not cause pollution to the environment.</p>	<p>-ve</p> <p>Nil</p> <p>+ve</p>	<p></p> <p>✓</p> <p></p>
<p>(m) Any environmental problems associated with the disposal of waste</p>	<p>The proposed activity will not generate a significant amount of waste nor generate the ongoing disposal of waste. Waste management for the proposed activity will be undertaken in accordance the conditions of consent under SSD 7894.</p>	<p>-ve</p> <p>Nil</p> <p>+ve</p>	<p></p> <p>✓</p> <p></p>
<p>(n) Any increased demanded on resources (natural or otherwise) that are, or are likely to become, in short supply</p>	<p>The proposed activity is not reliant upon, nor will it increase the demand for finite resources.</p>	<p>-ve</p> <p>Nil</p> <p>+ve</p>	<p></p> <p>✓</p> <p></p>
<p>(o) Any cumulative environmental effects with other existing or likely future activities.</p> <p><i>Prompt only: Does the proposal have an impact when considered in conjunction with other activities that are either under construction or that have been approved in the immediate area?</i></p>	<p>The proposed activity will not generate any cumulative adverse environmental impacts when considered against the already approved development of the CCWM and any other likely future activities surrounding the CCWM.</p>	<p>-ve</p> <p>Nil</p> <p>+ve</p>	<p></p> <p>✓</p> <p></p>
<p>(p) Any impact on coastal processes and coastal hazards, including those under projected climate change conditions.</p>	<p>The site of the proposed activity is not located on the coast or identified as a foreshore area. The proposed activity will not therefore adversely impact on coastal processes and coastal hazards.</p>	<p>-ve</p> <p>Nil</p> <p>+ve</p>	<p></p> <p>✓</p> <p></p>

6 Summary of Impacts

Any likely impacts relating to the proposed activity have been considered and include the following:

Heritage

A Statement of Heritage Impact (at **Appendix 4**) has been prepared by Ian Kelly. It demonstrates that the proposed activity:

- Will not cause any adverse heritage impact on adjacent heritage items surrounding the CCWM, including the Great Hall and Quadrangle to the west, Baxter's lodge to the east and the Fisher Library to the south; and
- Will not adversely impact the significant view corridor from the Quadrangle looking down University Avenue to the City.

The proposed works are in accordance with an active and valid development consent (SSD 7894) and do not adversely impact any building of Exceptional or High Significance. The proposed works can therefore qualify for Site Specific Exemption 3 – General Exemption University of Sydney under Section 57(2) of the *Heritage Act 1977*.

Design Excellence

The proposed works are minor in nature and do not require referral to the University of Sydney Design Excellence Review Panel. Notwithstanding, the design architect (Johnson Pilton Walker) has had direct involvement in the proposed modifications and has endorsed the proposed works, demonstrating the activity's consistency with the original design intent of the CCWM. The design excellence quality of the CCWM, albeit with the inclusion of the proposed works, is considered to be retained and therefore consistent with the Design Quality Excellence condition (Condition A5) under SSD 7894 (refer to **Appendix 3**).

It is noted that Juliette Churchill, a member of the University of Sydney Design Excellence Review Panel, has reviewed and endorsed the proposed activity.

In addition to the above, it is considered that:

- Due to the nature and extent of the proposed activity, the impact of the activity on the biophysical activity will be negligible.
- The proposed activity will not impact the positive employment and economic impacts associated with the construction and operation of the CCWM.
- The proposed activity has been designed to respect existing heritage items, including the Quadrangle Building and the prominent sight lines it holds to the Sydney CBD (as detailed above). In particular, it is noted that when viewed from the Senate Room of the Quadrangle Building (refer to **Appendix 2**), the opening of the CCWM's roof is not visible irrespective of the removal of the rooftop louvres (as proposed). This is reflective of the change in ground level, and ultimately higher eye height level between the Senate Room (RL 48500) and the CCWM (RL 48350).
- Any construction impacts associated with the undertaking of the proposed activity including waste, noise and or dust can be managed in accordance with the conditions of consent for SSD 7894 (refer to **Appendix 5**).
- The proposed activity, more broadly, remains consistent with the conditions of consent for SSD 7894.



CONCLUSION

The proposed activity is not likely to result in a significant environmental impact and can be appropriately progressed for approval via Part 5 of the *Environmental Planning and Assessment Act 1979*, subject to the mitigation measures in **Section 8** being properly implemented.

7 General Requirements

7.1 PLANS AND REPORTS

- a) The activity shall be implemented generally in accordance with the following plans and documentation:

TABLE 8 – APPROVED PLANS AND DOCUMENTATION

REPORT/PLAN TITLE	PREPARED BY	DATE
General Arrangement Plan Roof (TE-AR-JPW-1010) Revision 04	Johnson Pilton Walker	24/08/2018
Section North 01 (TE-AR-JPW-3000) Revision 02	Johnson Pilton Walker	18/06/2018
Section South 01 (TE-AR-JPW-3010) Revision 02	Johnson Pilton Walker	18/06/2018
Section West 01 (TE-AR-JPW-3020) Revision 02	Johnson Pilton Walker	18/06/2018
Elevation South (TE-AR-JPW-2000) Revision 02	Johnson Pilton Walker	13/09/2018
Elevation North (TE-AR-JPW-2002) Revision 02	Johnson Pilton Walker	13/09/2018
Detail Glazing to Insitu Concrete Walls (TE-AR-JPW-4614) Revision 00	Johnson Pilton Walker	20/09/2017

Where there is an inconsistency between the listed documents and the mitigation and management measures detailed in the REF and below, the REF shall prevail.

- b) A copy of the approved and certified plans, specifications and documentation shall be kept at the UoS G12 Building located at 22 Codrington Street, Darlington Campus at all times and should be made available to an authorised officer of the relevant Local Government authority upon request.

7.2 ACTIVITY CERTIFICATION

Certification under Section 6.28 of the EP&A Act will be required before the proposed activity is undertaken. The proposed activity will also be undertaken in accordance with the conditions of consent issued for the CCWM under SSD 7894.

7.3 OTHER APPROVALS AND REGISTRATION

There are no separate approvals, authorisations or notifications required in relation to the proposed activity prior to determination under Part 5 of the EP&A Act.

8 Mitigation Measures

This REF does not propose any new mitigation measures. The proposed activity is minor in nature and is proposed to be undertaken in accordance with the conditions of consent issued for the CCWM under SSD 7894 (refer to **Appendix 5**), except where amended by the following revised architectural drawings prepared and endorsed by Johnson Pilton Walter (at **Appendix 3**):

- General Arrangement Roof Plan (TE-AR-JPW-1010) Revision 04, dated 24/08/2018;
- Section North 01-1 (TE-AR-JPW-3000) Revision 02, dated 18/06/2018;
- Section South 01 (TE-AR-JPW-3010), Revision 02, dated 18/06/2018;
- Section West 01 (TE-AR-JPW-3020), Revision 02, dated 18/06/2018;
- Elevation South (TE-AR-JPW-2000), Revision 02, dated 13/09/2018;
- Elevation West (TE-AR-JPW-2002), Revision 02, dated 13/09/2018; and
- Detail Glazing to Insitu Concrete Walls (TE-AR-JPW-4614) Revision 00, dated 20 September 2017.

The consent conditions, provide specific performance measures and criteria for the development of the CCWM and provides an obligation to ensure there is no material harm to the environment during the construction and operation of the CCWM without the implementation of reasonable and feasible measures.

The measures and criteria provided within the consent are considered capable of mitigating any potential adverse environmental impacts associated with the proposed activity.